55-1520-240-23-2

TM 55-1520-240-23-2

TECHNICAL MANUAL

AVIATION UNIT AND AVIATION INTERMEDIATE MAINTENANCE MANUAL

CH-47D HELICOPTER

This copy is a reprint which includes current pages from Changes 1 through 10.

HEADQUARTERS, DEPARTMENT OF THE ARMY

10 MAY 1983

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NO. 10

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Aviation Unit and Aviation Intermediate Maintenance Manual

CH-47D HELICOPTER

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2-7 and 2-8	2-7 and 2-8
2-8.1 and 2-8.2	2-8.1 and 2-8.2
2-9 through 2-12	2-9 through 2-12
2-167 and 2-168	2-167 and 2-168
2-221 and 2-222	2-221 and 2-222
2-227 through 2-230	2-227 through 2-230
2-297 and 2-298	2-297 and 2-298
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2-769 through 2-772	2-769 through 2-772
2-899 and 2-900	2-899 and 2-900
2-913 and 2-914	2-913 and 2-914

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Chief of Staff

Official:

WILLIAM J. MEEHAN II
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The Adjutant General

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CH-47D HELICOPTER

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Remove pages	Insert pages
2-8.1/2-8.2	2-8.1 and 2-8.2
2-87 thru 2-89	2-87 thru 2-90
2-99 thru 2-100.3/2-100.4	2-99 thru 2-100.8
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2-860.1 and 2-860.2	2-860.1 and 2-860.2

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Remove pages	Insert pages
i and ii	i and ii
iii and iv	iii and iv
---	2-456.1 and 2-456.2
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2-930.3 and 2-930.4	2-930.3 and 2-930.4
2-931 and 2-932	2-931 and 2-932

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Remove pages	Insert pages
g/h	g/h
2-8.1/2-8.2	2-8.1/2-8.2
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2-423 and 2-424	2-423 and 2-424

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2-456.5 through 2-456.8	2-456.5 through 2-456.8
2-457 and 2-458	2-457 and 2-458
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---	2-638.1/2-638.2
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---	2-782.1 and 2-782.2
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2-843 and 2-844	2-843 and 2-844
2-847 and 2-848	2-847 and 2-848
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2-859 and 2-860	2-859 and 2-860
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---	2-904.1/2-904.2
2-905 through 2-908	2-905 through 2-908
---	2-908.1/2-908.2
2-917 through 2-919/2-920	2-917 through 2-920
2-921 and 2-922	2-921 and 2-922

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CH-47D HELICOPTER

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2-99 and 2-100	2-99 and 2-100
----	2-100.1 through 2-100.3/2-100.4
2-105 and 2-106	2-105 and 2-106
2-241 and 2-242	2-241 and 2-242
2-715 through 2-718	2-715 through 2-718
2-774 and 2-775	2-774 and 2-775

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Remove pages	Insert pages
2-737 and 2-738	2-737 and 2-738
----	2-738.1 and 2-738.2
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Remove pages	Insert pages
2-456.5 through 2-456.8	2-456.5 through 2-456.8
---	2-496.1/2-496.2
2-497 and 2-498	2-497 and 2-498
2-515 and 2-516	2-515 and 2-516
---	2-516.1 through 2-516.45/2-516.46
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2-407 and 2-408	2-407 and 2-408
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2-489 through 2-492	2-489 through 2-492
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2-953 and 2-954	2-953 and 2-954
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The Adjutant General

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WARNING AND FIRST AID DATA.

For artificial respiration and other first aid data, refer to FM 21-11.

Personnel performing instructions involving operations, procedures, and practices which are included or implied in this technical manual shall observe the following instructions. Disregard of these warnings and precautionary information can cause serious injury, illness, death, or an aborted mission.

WARNING

An operating procedure, practice, etc., which if not correctly followed, could result in personal injury or loss of life.

CAUTION

An operation procedure, practice, etc., which if not strictly observed, could result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which is essential to highlight.

WARNING

Cleaning Solvents

- **Those areas of skin and clothing that come in contact with cleaning solvents should be thoroughly washed immediately.**
- **Saturated clothing should be removed immediately.**
- **Areas in which cleaning solvents are used should be adequately ventilated to keep vapors to a minimum.**
- **If cleaning solvents contact the eyes, nose, or ears, flush them with generous quantities of water, and then seek medical attention immediately.**

WARNING

Electrical and Electronic Equipment Maintenance

- **Do not wear rings, watches, or metal jewelry when working around electrical equipment. Serious burns can result.**
- **Be careful when working on 150- and 300-volt dc circuits and on ac generator 115- and 200-volt ac outputs. Serious burns can result.**

WARNING

Dangerous Static Charges

Ground the helicopter during parking, fueling, or defueling. Sparks can cause fuel vapor to ignite.

WARNING

Dangerous Voltages at Antenna Terminals

Be careful when working near antenna or antenna terminals. Radio frequency (rf) voltages exist at these points when transmitters are operating. Contact with radiating antennas can cause serious rf burns.

WARNING

Poisonous Carbon Monoxide Fumes

Toxic carbon monoxide fumes may be present inside the helicopter whenever engines or apu are operating with cargo ramp open. Ventilate the cockpit.

WARNING

Corrosive Battery Electrolyte (Potassium Hydroxide)

- The electrolyte used in nickel-cadmium batteries contains potassium hydroxide which is a caustic substance.
- Contact with skin or eyes will cause burns.
- Use rubber gloves, rubber apron, and protective eye covering or face shield when handling battery.
- If personal contact with electrolyte occurs, flush immediately with large amounts of only clean water. Get medical attention immediately.

WARNING

Explosive Battery Hazard

- Before removing or installing battery, make sure battery switch is OFF and battery has cooled down if overheated.
- Connecting or disconnecting battery connector while battery is under load may cause explosion or electrical arcing resulting in injury to personnel.

WARNING

Electrolyte Contamination

- Separate nickel-cadmium batteries and lead-acid type batteries as far as possible from each other.
- Do not let anything associated with a lead-acid battery, including air, come in contact with a nickel-cadmium battery or its electrolyte. Sulfuric acid fumes from a lead-acid battery could result in damage to a nickel-cadmium battery leading to battery failure and a hazard to personnel.
- Do not use same tools or protective clothing for both types of batteries.
- If sulfuric acid has been somehow mixed with electrolyte in the battery, the upper areas of the battery cells will appear green in color indicating battery failure or damage and potential danger to personnel unless replaced.

WARNING

Acids and Alkalines

- Do not add water to acid. A violent action will result. Add acid to water in small quantities.
- Rust stripper is an alkaline solution.
- Avoid skin contact. Wear protective clothing. Wash thoroughly after using.

WARNING

Windshield Rain Repellent

- Do not let windshield rain repellent contact open flame. Deadly hydrogen fluoride gas could be generated.
- Wash hands with soap and water after handling repellent.

WARNING

Antiseize Compounds

- Some antiseize compounds are irritants. Avoid inhaling fumes and contact with skin.
- Wear protective clothing. Wash thoroughly after using.

WARNING

Paints, Varnishes, Dopes, Thinners, and Lubricants

- These materials are generally highly flammable and may be irritants. Work in a well-ventilated area away from open flames.
- Avoid inhaling fumes and prolonged contact with skin. Wash thoroughly after using.

WARNING

Epoxy Resins, Cements, and Adhesives

- These materials may contain toxic or irritating substances. They may also be flammable. Work in a well-ventilated area away from open flames.
- Wear protective clothing. Avoid contact with skin. Wash thoroughly after using.

WARNING

Radiation Hazard

- Some instruments contain radioactive material. Do not try to disassemble these instruments. They present no radiation hazard unless seal is broken.
- If you think seal is broken, do not remove instrument from helicopter before consulting Base Radioactive Protection Officer (AR 40-15).
- Use a beta-gamma radiac meter AN/PDR-27 or equivalent to determine if instrument contains radioactive material (radium).

WARNING

Fire Extinguishing Agents

- Monobromotrifluoromethane (CF_3Br) is highly volatile but is not easily detected by smell. It is not toxic, but reduces oxygen available for proper breathing.
- If liquid CF_3Br contacts skin, it can cause frostbite or low temperature burns.
- If agent touches eyes or skin, immediately flush affected area with running water. Get medical attention.

WARNING

Noise

- Sound pressure levels in this helicopter during some operating conditions exceed the Surgeon General's hearing conservation criteria (TB MED251).
- Hearing protection devices, such as aviator helmet or ear plugs, shall be worn by all personnel in and around the helicopter during operation.

WARNING

FOD

- Make sure area is clear of foreign objects before closing access doors, panels, and fairings.
- If area is not clear, damage to components or systems could result in personal injury or death.

WARNING

JP-4/JP-5 Fuel MIL-T-5624

- Fuel is flammable. Do not use near welding areas, open flames, or on very hot surfaces.
- Use only with adequate ventilation.
- Avoid prolonged or repeated contact with skin. Prolonged contact may cause drying and irritation of skin.
- Remove saturated clothing immediately.
- Do not smoke when handling fuel.
- Do not take internally.
- Store in approved, metal safety containers.

WARNING

Lubricating Oils MIL-L-23699 or MIL-L-7808

- If oil is decomposed by heat, toxic gases are released.
- Prolonged contact with liquid or mist may cause dermatitis and irritation.
- If there is prolonged contact with skin, wash affected area with soap and water. If oil contacts eyes, flush with water immediately. Remove saturated clothing.
- If swallowed, do not try to vomit. Seek immediate medical attention.
- When handling liquid oil, wear rubber gloves. If prolonged contact with mist is likely, wear approved respirator.

WARNING

Lifting Components With Hoist

- Lifting or hoisting of components shall only be done by designated personnel.
- The load capacity rating shall be clearly marked on hoist. Do not exceed load rating.
- Inspection and testing for cracks or defects in hoist system shall be performed on a regular basis.
- Before lifting, alert personnel in immediate areas.
- Before lifting, balance the load.
- Do not stand under load while it is being moved from one area to another on a hoist.
- Do not stand under load to do maintenance work.

WARNING

Hydraulic Pressures

- High pressures used in testing hydraulic components can cause line rupture or component failure.
- Only qualified personnel shall operate, service, and maintain hydraulic test equipment.
- Use heavy plastic shielding at least 1/2-inch thick when applying pressures over 250 psi to prevent injury to personnel.

WARNING

Hydraulic Fluid

- Hydraulic fluid is toxic. It can irritate skin and eyes and cause burns. When fluid is decomposed by heating, it releases toxic gases.
- Avoid inhaling. Use only with adequate ventilation. If prolonged contact with mist is likely, wear an appropriate respirator.
- Avoid contact with skin, eyes, or clothing. Wear rubber gloves if handling liquid.
- In case of contact with skin, immediately wash skin with soap and water. In case of contact with eyes, flush them immediately with clear water and get medical attention.
- If liquid is swallowed, do not induce vomiting; get immediate medical attention.

WARNING

Compressed Air

- Do not use more than 30 psi compressed air for cleaning purposes. Debris propelled under pressure can cause injury to eyes.
- Use eye protection to prevent injury to personnel.

WARNING

Flare Dispenser

- Flares can accidentally fire, sometimes from stray voltage. Injury or death can result.
- Remove all electrical power from helicopter before installing loaded payload module on dispenser assembly.
- Keep hands and face away from end of payload module during installation.

WARNING

Maintenance Platforms/Workstands

- Use only appropriate maintenance platforms/workstands illustrated in TM 55-405-10, or other approved locally procured stands and restraint equipment, when working above 10 feet on helicopters in a nontactical environment. Otherwise, personnel injury could result from accidental falls.

WARNING

- Do not wear eyeglasses having light sensitive lenses while performing magnetic particle (black light) or fluorescent penetrant inspections.
- Such lenses have a 16 to 45 percent light transmission loss.
- Wearing them can result in failure to detect flaws and cracks under ultraviolet light.

WARNING

Cadmium-Plated Tools

- **Use only chrome-plated or unplated steel tools when working on the helicopter.**
- **Cadmium or zinc-plated tools are not permitted, since these platings are prone to chipping and flaking. The chips and flakes could cause corrosion or fluid contamination.**
- **All tools, regardless of plating type, shall be serviceable and free of chipping.**

TECHNICAL MANUAL

No. 55-1520-240-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *10 May 1983*

Aviation Unit and Aviation Intermediate Maintenance Manual
CH-47D HELICOPTER

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U.S. Army Troop Support and Aviation Materiel Readiness Command, ATTN: DRSTS-MPSD, 4300 Goodfellow Boulevard, St. Louis, Missouri, 63120. A reply will be furnished to you.

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AIRFRAME

SECTION I

GENERAL STRUCTURAL REPAIRS

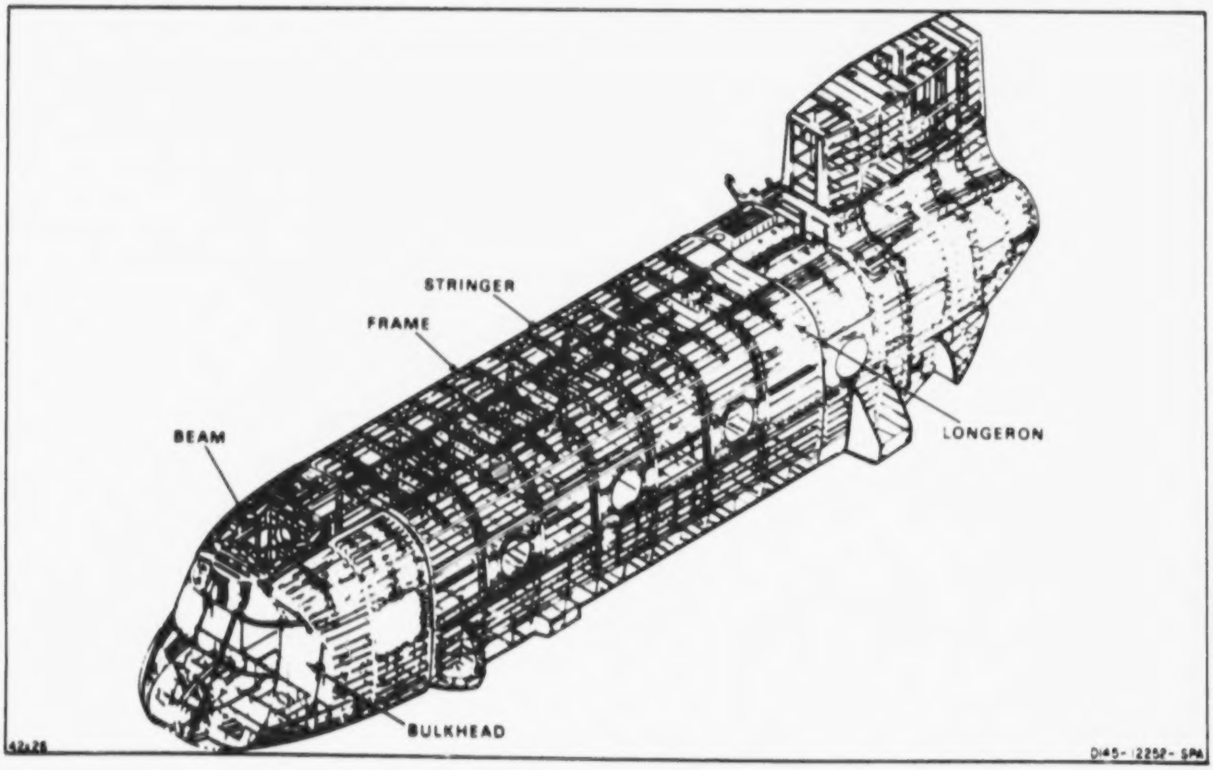
DESCRIPTION AND OPERATION

2-1 AIRFRAME

The airframe structure consists of two parts — the primary structure and the secondary structure. Both are made mostly of high-strength aluminum alloy.

Primary Structure

The primary structure is the skeleton framework that gives the helicopter its shape. Stringers and longerons extend fore and aft. They are supported by frames and bulkheads that extend across the width of the fuselage. Formers and beams are used where needed to support loads such as power-plants, transmissions, and landing gear.

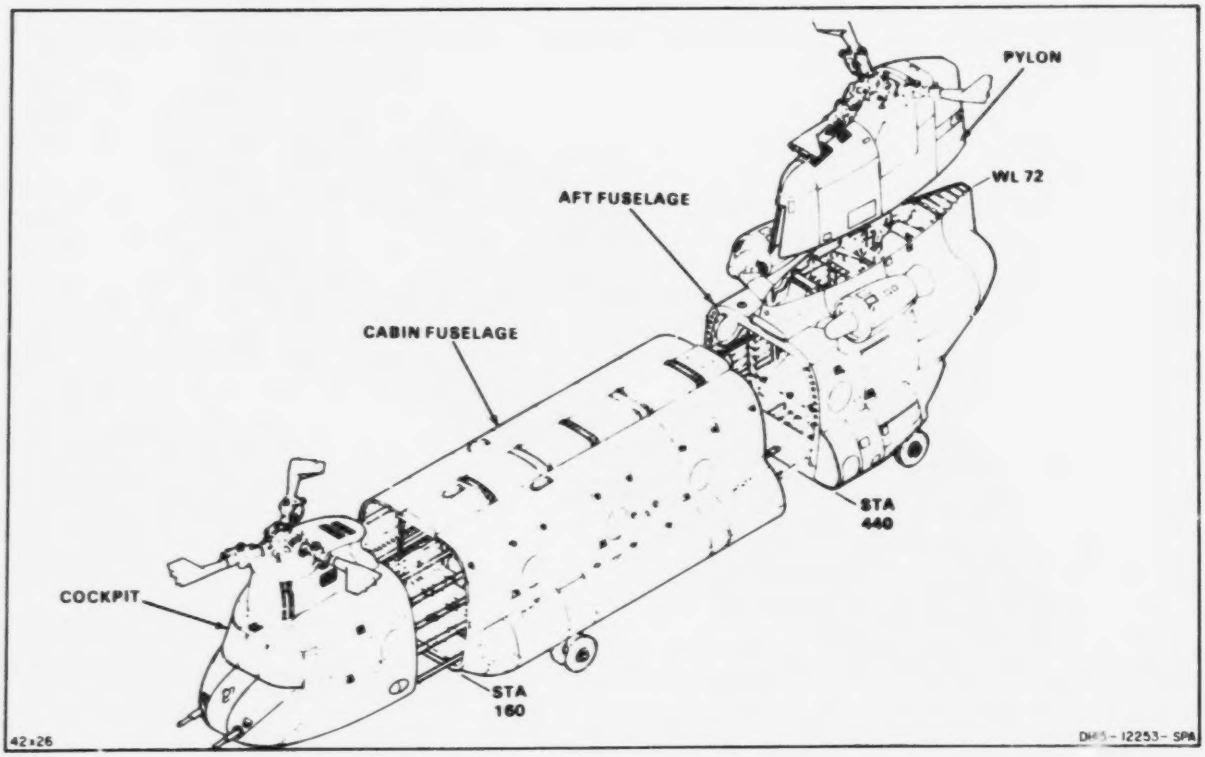


Secondary Structure

The secondary structure is made up of aluminum panels that are riveted to the primary structure. The panels are stressed to help provide strength and stiffness to the helicopter. Other panels protect and provide aerodynamic fairings over components.

The airframe is built in four sections — cockpit, cabin fuselage, aft fuselage, and pylon. The cockpit is spliced to the cabin fuselage at station 160. The aft fuselage is spliced to the cabin fuselage at station 440. The pylon is attached to the aft fuselage at water line 72.

The cockpit and fuselage sections cannot be separated. The pylon can be removed if needed to transport the helicopter.


PYLON
WL 72
AFT FUSELAGE
CABIN FUSELAGE
STA 440
COCKPIT
STA 160
42x26
DHS-12253-SPA

GO TO NEXT PAGE

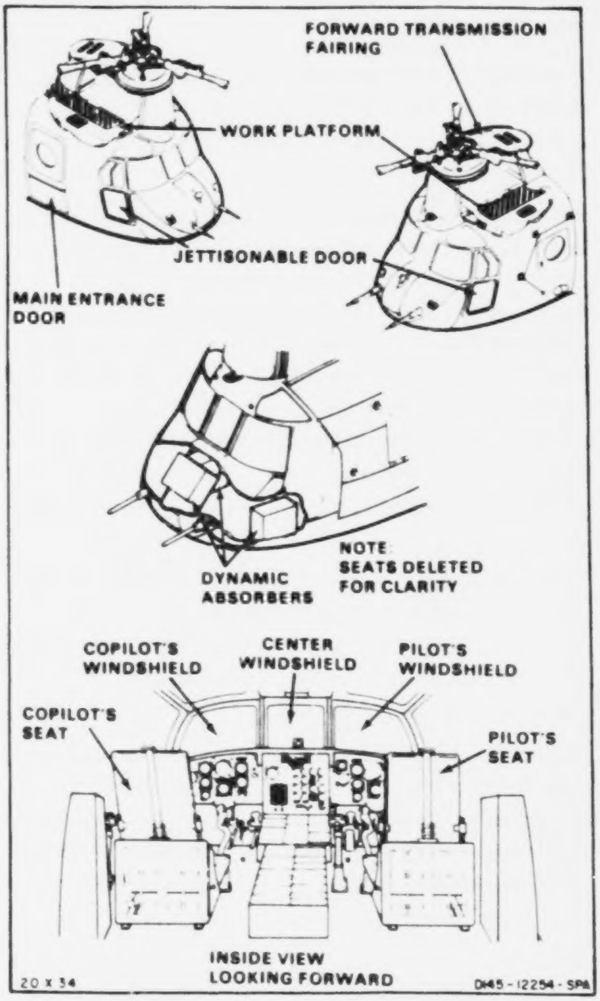
Cockpit

The cockpit section contains controls and the fully adjustable pilot's and copilot's seats. The forward transmission is mounted at the top of the section; covered by a fiberglass fairing. A hinged work platform is built into each side of the fairing.

Three self-tuning dynamic absorbers are installed in the cockpit section. One is in the nose and two are below the cockpit floor, under the seats. The absorbers automatically adjust themselves to lower vibration in the helicopter throughout its normal operating range.

The section contains three doors. A jettisonable door is next to each seat. The main entrance door is at the aft right side of the section.

There are three windshields in the cockpit — pilot's, copilot's, and center. Each consists of three layers. The middle layer of all windshields is plastic. Inboard and outboard layers are either glass or plastic. The pilot's and copilot's windshield can be heated electrically for anti-icing or defogging. The center windshield can be heated for defogging only. Each windshield has a temperature sensing element to provide automatic temperature control.


FORWARD TRANSMISSION FAIRING
WORK PLATFORM
JETTISONABLE DOOR
MAIN ENTRANCE DOOR
DYNAMIC ABSORBERS
NOTE: SEATS DELETED FOR CLARITY
COPILOT'S WINDSHIELD
CENTER WINDSHIELD
PILOT'S WINDSHIELD
COPILOT'S SEAT
PILOT'S SEAT
INSIDE VIEW LOOKING FORWARD
20 X 34
D145-12254-SPA

GO TO NEXT PAGE

2-1 AIRFRAME (Continued)

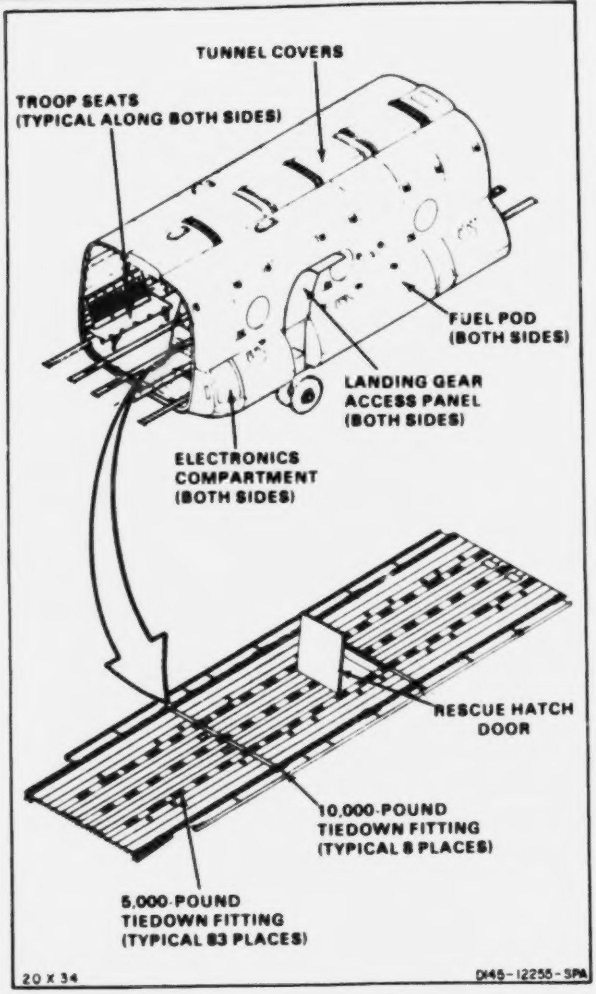
Cabin Fuselage

The cabin section provides the major carrying capacity of the helicopter. It can be fitted to carry troops, litters, cargo, or any combination of the three.

The cabin floor consists of 12 removable panels set between five tiedown beams. The panels are made of riveted sections of magnesium alloy. Center panels are covered with non-skid material. Tiedown rings are installed in the tiedown beams. The rings have a capacity of 5,000 or 10,000 pounds. A rescue hatch door of sandwich honeycomb construction is in the center of the floor. It hinges open for access to an external cargo hook and a movable hatch in the lower skin.

A tunnel along the top of the cabin section houses drive shafting and flight controls. The tunnel consists of six honeycomb covers that hinge open for access to components. A walkway at the right of the tunnel runs the length of the cabin.

Detachable pods on each side of the fuselage section contain the fuel tanks. The forward end of each pod contains components of the electronic and electrical systems. A hinged panel in each pod provides access to the forward landing gear.


TUNNEL COVERS
TROOP SEATS (TYPICAL ALONG BOTH SIDES)
FUEL POD (BOTH SIDES)
LANDING GEAR ACCESS PANEL (BOTH SIDES)
ELECTRONICS COMPARTMENT (BOTH SIDES)
RESCUE HATCH DOOR
10,000-POUND TIEDOWN FITTING (TYPICAL 8 PLACES)
5,000-POUND TIEDOWN FITTING (TYPICAL 83 PLACES)
20 X 34
D145-12255-SPA

GO TO NEXT PAGE

Aft Fuselage and Pylon

The aft fuselage and pylon sections together contain the aft transmission and the apu. The engines are mounted inside nacelles at the base of the pylon on each side of the fuselage.

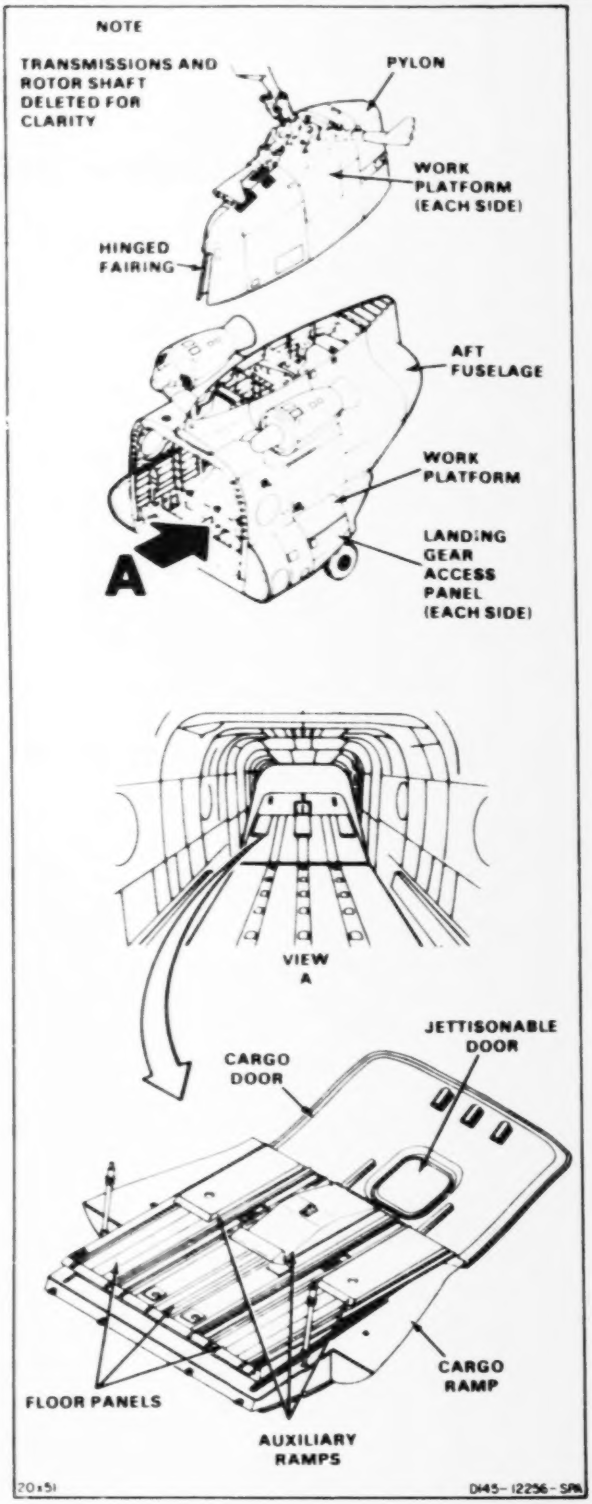
A hydraulically operated cargo loading ramp is at the aft end of the fuselage section. It includes a ramp, a jettisonable cargo door, and three auxiliary loading ramps. Three removable floor panels are set into the cargo ramp. Two 5,000 pound tie-down fittings are at each side of the ramp. The cargo door retracts inside the ramp when the ramp is lowered and extends when the ramp is raised. A jettisonable door hatch is in the center of the cargo door.

The three auxiliary ramps are hinged at the aft edge of the ramp. In use, they are rotated from their stowed position on the ramp to bridge the gap from the ramp to the ground. The center auxiliary ramp can be used as a work platform for maintenance on the apu.

Pods along the lower edge of each side of the aft fuselage form an extension of the cabin fuselage pods. They contain access panels to the aft landing gear and fold-out work platforms for engine maintenance.

The pylon houses the aft rotor shaft and the combining transmission. The leading edge of the pylon is hinged on each side. It opens at the centerline for access to the combining transmission. A work platform opens to provide access to the rotor shaft.

The pylon is attached to the aft fuselage at water line 72. It can be removed if needed to transport the helicopter.


NOTE
TRANSMISSIONS AND ROTOR SHAFT DELETED FOR CLARITY
PYLON
WORK PLATFORM (EACH SIDE)
HINGED FAIRING
AFT FUSELAGE
WORK PLATFORM
LANDING GEAR ACCESS PANEL (EACH SIDE)
A
VIEW A
JETTISONABLE DOOR
CARGO DOOR
CARGO RAMP
FLOOR PANELS
AUXILIARY RAMPS
20x51
D145-12256-SPA

END OF TASK

SECTION II

GENERAL STRUCTURAL REPAIRS

2-2 OPEN AND CLOSE ACCESS PANELS 2-2

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

---

1 Access provisions for the helicopter are listed in following two tables

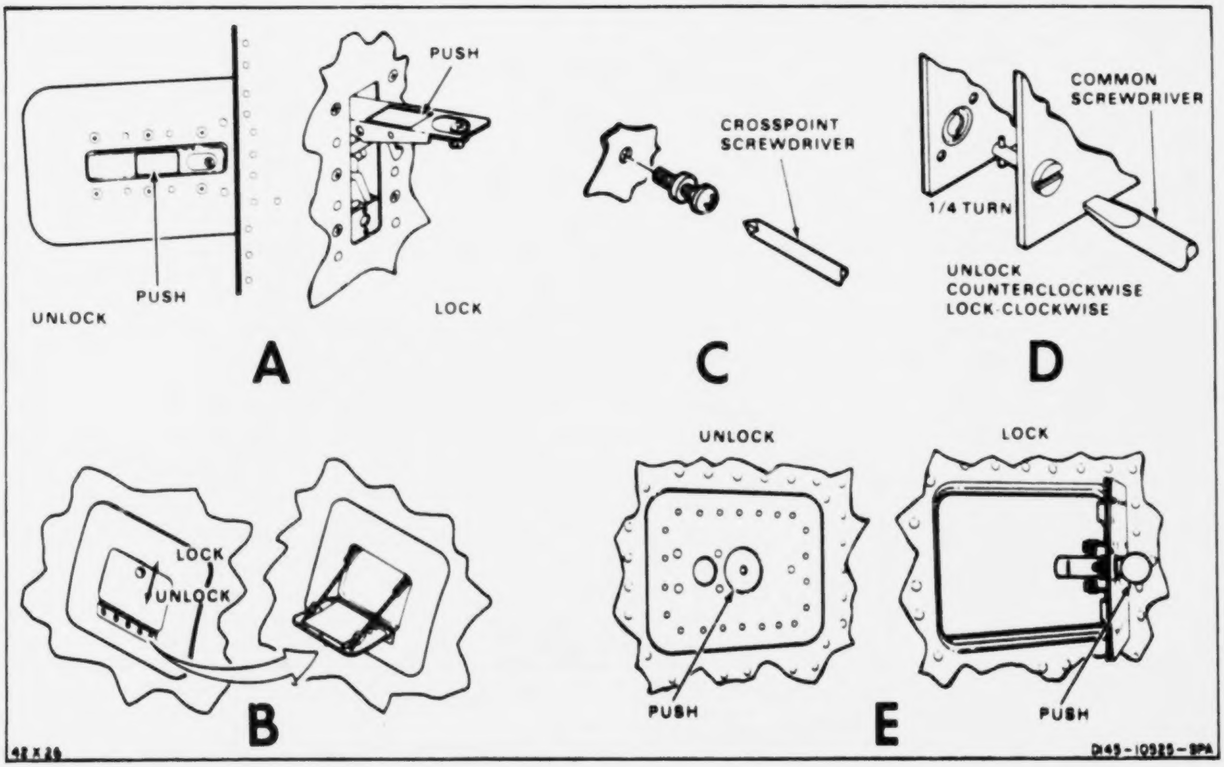
2 Panels, doors, fairings, covers, and work platforms are identified by access numbers in column one

3 The access each cover provides is listed in column two

METHODS

4 Types of fasteners used in each cover are listed in column three

5 Methods for opening and closing each cover are listed in columns four and illustrated below


PUSH
UNLOCK
PUSH
LOCK
A
CROSSPOINT SCREWDRIVER
C
COMMON SCREWDRIVER
1/4 TURN
UNLOCK COUNTERCLOCKWISE
LOCK-CLOCKWISE
D
LOCK
UNLOCK
B
UNLOCK
LOCK
PUSH
E
PUSH
42X26
D45-10325-SPA

GO TO NEXT PAGE

2-2 OPEN AND CLOSE ACCESS PANELS (Continued) 2-2

ACCESS NUMBER	NAME	ACCESS TO	OPEN/CLOSE	METHOD
1	Panel	Pylon mounting bolts	12 turnlocks	D
2	Door	Radar warning antenna	20 screws	C
3	Panel	Radar warning receiver	20 screws	C
4	Hinged Fairing	Pylon combiner transmission	3 latches	A
5	Hinged Panel	Engine drive shaft	5 turnlocks	D
6	Hinged Panel	Engine drive shaft	2 turnlocks	D
7	Panels	Hoisting unit installation	6 turnlocks	D
8	Covers	Cabin crown tunnel	3 turnlocks	D
9	Work Platform	Forward transmission	3 latches	A
10	Door	Nose compartment	1 latch	A
11	Door	Forward interphone jack	1 latch	A
12	Foldout steps	Fuselage	1 thumbscrew	B
13	Panel	Forward fuel boost pump	29 screws	C
14	Panel	Forward landing gear	2 latches	A
15	Panel	Aft fuel boost pump	29 screws	C
16	Panel	Center pod	13 screws	C
17	Panel	Aft pod	13 screws	C
18	Door	Aft interphone jack and ramp control	1 catch	E
19	Panel	Aft landing gear	2 latches	A
20	Work platforms	Engine (powerplant)	1 catch	E
21	Lower Door	Engine	4 turnlocks	D
22	Upper cover	Engine	4 latches	A
23	Door	Combiner transmission	1 catch	E
24	Door	Hydraulic module inspection	1 catch	E
25	Cover	Reservoir cooler	14 turnlocks	D
26	Door	Generator	8 turnlocks	D
27	Work Platform	Pylon, aft transmission, right side	2 latches	A
28	Cover	Aft transmission	12 turnlocks	D
29	Door	Rescue hatch (cabin floor)	1 catch	E
30	Panel	ADF antenna amplifier	screws	C
31	Door	Engine oil quantity indicator	1 flap	by hand
32	Door	Engine oil filler	3 latches	A
33	Panel	Pylon mounting bolts	12 turnlocks	D
34	Work Platform	Pylon, aft transmission, left side	2 latches	A
35	Panel	Utility hydraulic pump	8 turnlocks	D
36	Cover	Aft transmission	12 turnlocks	D
37	Panel	Apu emergency fluid shutoff	1 catch	E
38	Door	Electrical compartment	1 latch	A
39	Door	External power receptacles	1 catch	E
40	Cover	Hydraulic ground test	6 turnlocks	D
41	Cover	Forward transmission hydraulic module	6 turnlocks	D
42	Door	Forward transmission hydraulic module	4 turnlocks	D
43	Panel	Aft ground test connection	2 catches	E
44	Panel	Fuel tank vent	4 turnlocks	D
45	Baffle	Aft drive shafting	2 turnlocks	by hand
46	Baffle	Aft transmission	7 turnlocks	D
47	Panel	Flight controls closet	2 turnlocks	D

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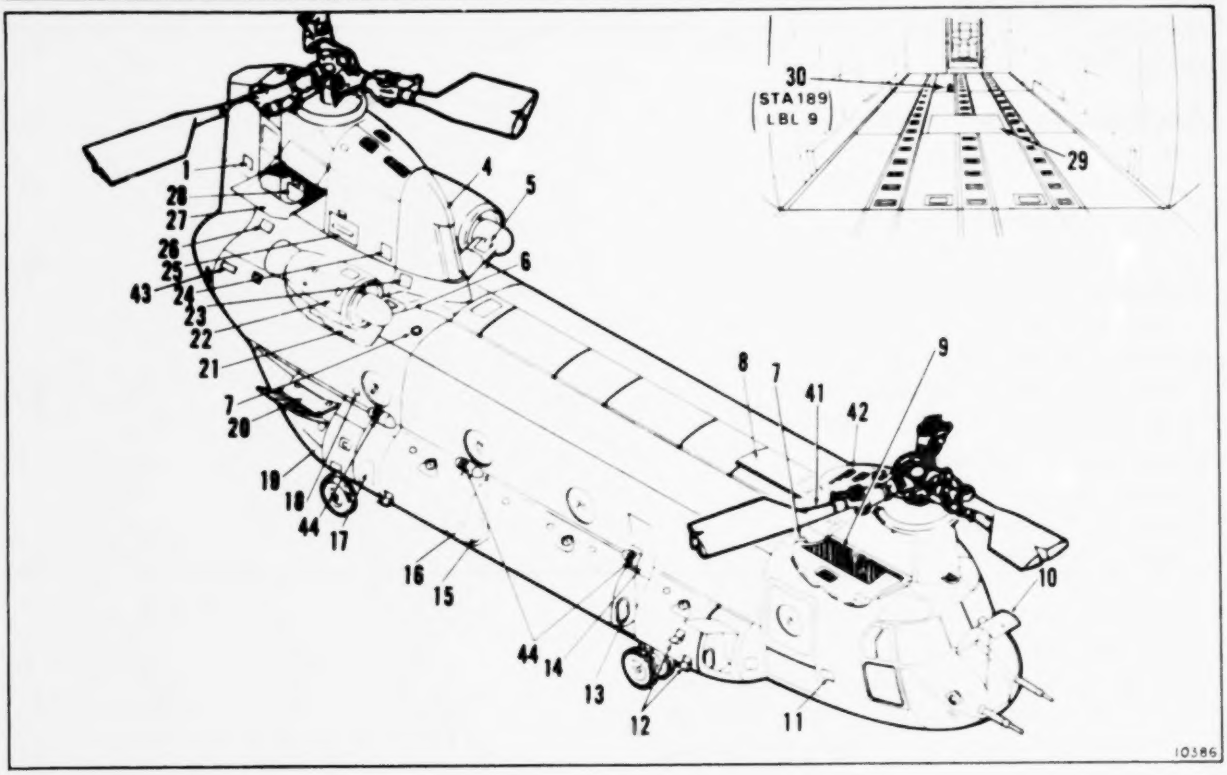
2-2 OPEN AND CLOSE ACCESS PANELS (Continued) 2-2


30
STA 189
LBL 9
29
1
28
27
26
25
43
24
23
22
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7
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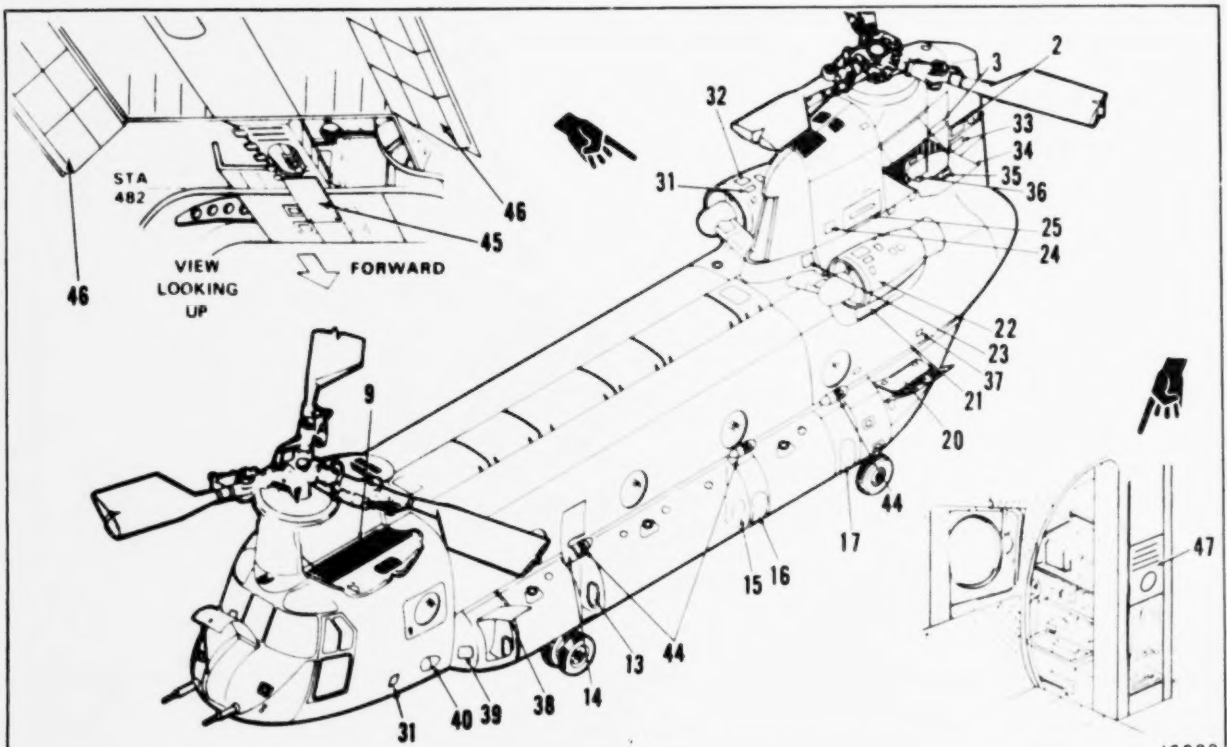

STA
482
46
45
46
VIEW
LOOKING
UP
FORWARD
32
31
3
2
33
34
35
36
25
24
22
23
37
21
20
9
44
17
15
16
47
13
44
14
38
39
40
31
16882

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-2.1 INSPECT ACCESS PANELS AND WORK PLATFORMS FOR CHAFING 2-2.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

Tape, Antichafing (E383.1)

Personnel Required:

Medium Helicopter Repairman
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

---

1. Open access panels and work platforms (Task 2-2).
2. Inspect access panels and work platforms for evidence of chafing on mating surfaces.
3. Apply antichafing tape to affected surfaces.
4. Close access panels and work platforms (Task 2-2).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-3 REMOVE AND INSTALL DRIP PANS 2-3

INITIAL SETUP

Applicable Configurations:
All

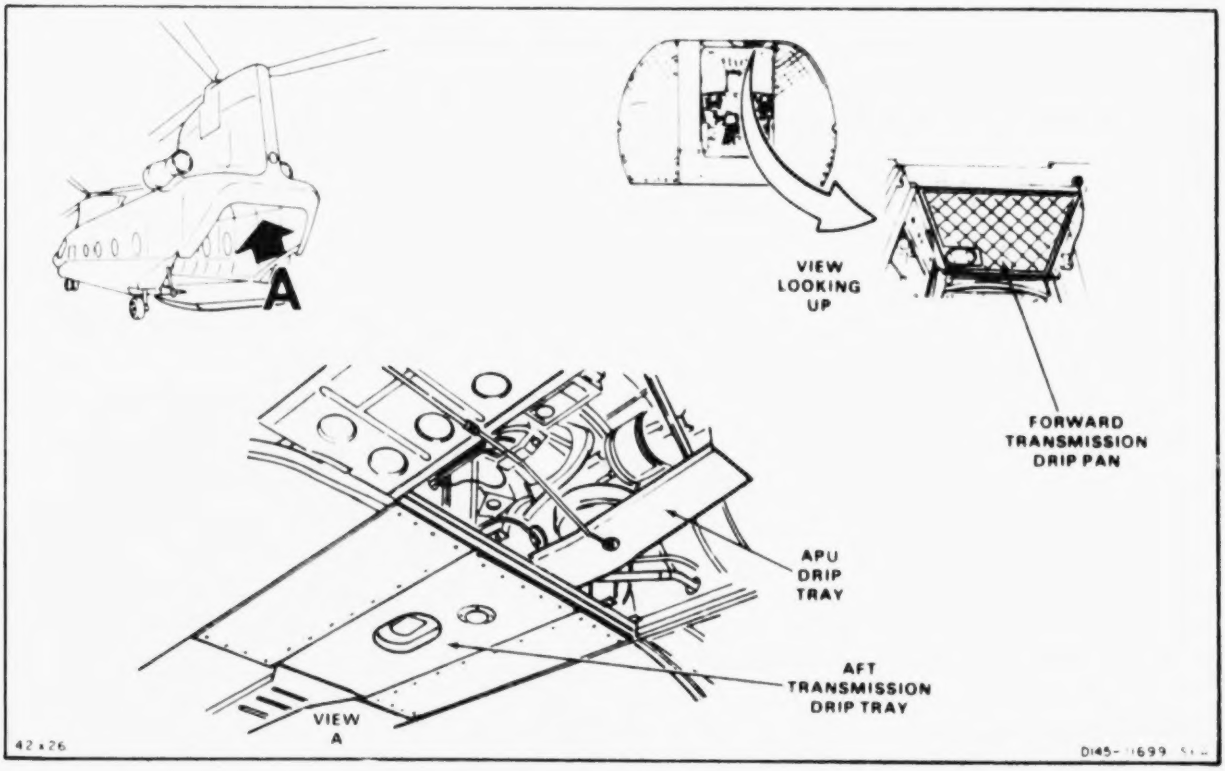
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
None

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Open and Level (Aft Transmission and APU Drip Trays Only)


A
VIEW LOOKING UP
FORWARD TRANSMISSION DRIP PAN
APU DRIP TRAY
AFT TRANSMISSION DRIP TRAY
VIEW A
42 x 26
D145-11699

GO TO NEXT PAGE

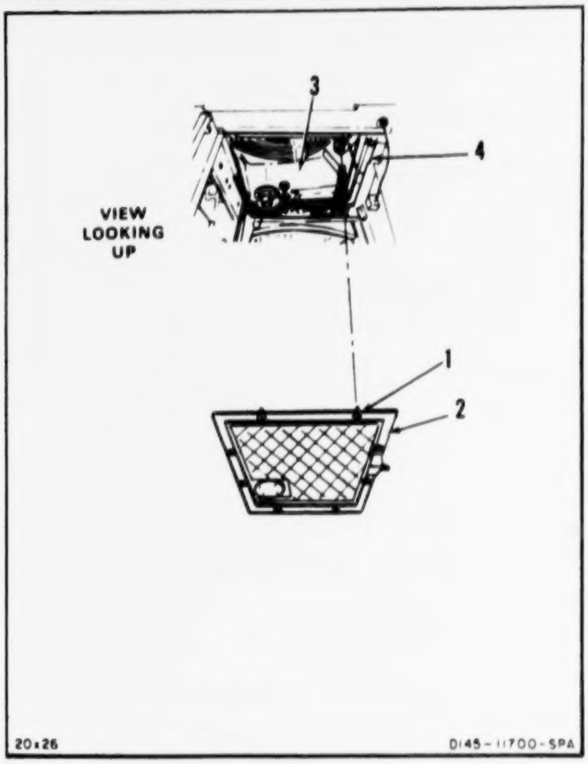
2-3 REMOVE AND INSTALL DRIP PANS (Continued) 2-3

REMOVE FORWARD TRANSMISSION DRIP PAN

1. **Loosen** six turnlock **fasteners (1). Remove drip pan (2) from under sump (3).**

INSTALL FORWARD TRANSMISSION DRIP PAN

2. **Position drip pan (2)** on structure (4). **Lock six turnlock fasteners (1).**

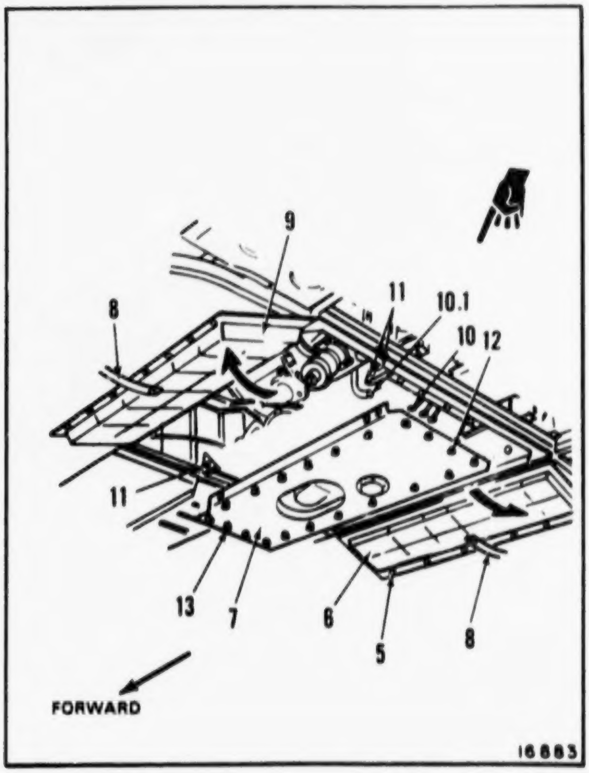


REMOVE AFT TRANSMISSION DRIP TRAY

3. **Loosen** seven **turnlock fasteners (5)** on baffle (6) at right side of drip tray (7).
4. **Swing baffle (6) against side of helicopter. Secure with strap (8).**
5. **Repeat** steps 5. and 6. **for baffle (9)** at left side of drip tray (7).
6. **Disconnect three wires (10)** on top of drip tray (7).

6.1. Remove drain line (10.1) from tray (7).

7. **Loosen three turnlock fasteners (11)** at each side of tray (7).
8. **Loosen five turnlock fasteners (12)** at aft end of tray (7).
9. **Loosen four turnlock fasteners (13)** at forward end of tray (7).
10. **Remove tray (7).**



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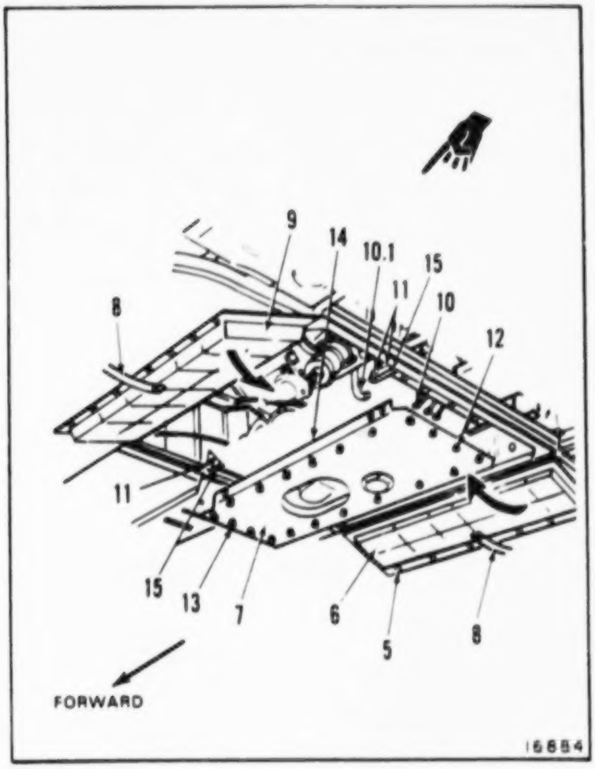
INSTALL AFT TRANSMISSION DRIP TRAY

11. Position drip tray (7) against structure. Place flange (14) inboard of supports (15) at each side of tray.
12. Tighten four turnlock fasteners (13) at forward end of tray (7).
13. Tighten five turnlock fasteners (12) at aft end of tray (7).
14. Tighten three turnlock fasteners (11) at each side of tray (7).

14.1. Connect drain line (10.1) to tray (7).

15. Connect three wires (10) on top of tray (7).
16. Release strap (8) on baffle (6). Swing baffle against right side of tray (7). Tighten seven turnlock fasteners (5).
17. Repeat step 18. for left baffle (9).



REMOVE APU DRIP TRAY

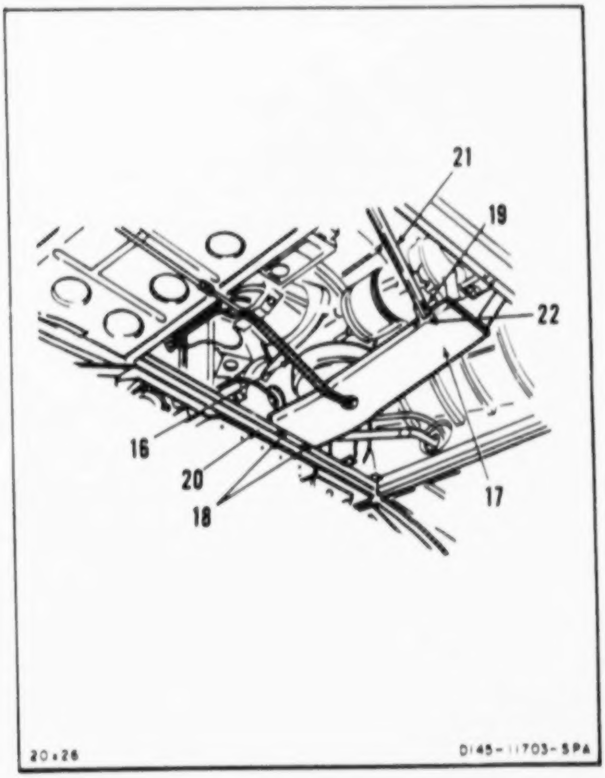
18. Disconnect drain hose (16) from drip tray (17).
19. Loosen two turnlock fasteners (18) at forward end of tray (17).
20. Loosen turnlock fastener (19) at each side of aft end of tray (17). Remove tray.

INSTALL APU DRIP TRAY

21. Position drip tray (17) on structure (20). Tighten two turnlock fasteners (18).
22. Align arm (21) with tee (22) at each side of tray (17). Tighten turnlock fastener (19).
23. Connect drain hose (16).

FOLLOW-ON MAINTENANCE:

Close cargo ramp (aft transmission and apu drip trays only).



END OF TASK

2-3.1 REPAIR TRANSMISSION AND APU DRIP TRAYS 2-3.1

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Shot Bags or Equivalent
Gram Scale, 100 Gram Capacity
Tee, 1/4-Inch
Source of Vacuum
Infrared Lamp, 140° to 160°F

Materials:
Abrasive Paper, 120 Grit (E7)
Abrasive Paper, 280 Grit (E10)
Kevlar Fabric, Style 285 or 281 (E209)
Wood Spatula (E424)
Polyethlene Cup (E157)
Brush (E86)
Teflon Tape (E399)
Epoxy Resin Adhesive (E47)
Hardener (E459)
Gloves (E186)
Acetone (E20)
Peel Ply (E270)
Primer (E292)
Epoxy Coating (E137)
Cloths (E120)
Teflon Impregnated Fabric (E170)
Temperature Indicating Strips (E413)

Personnel Required:
Aircraft Structure Repairer
Inspector

Equipment Condition:
Combining Transmission Removed (Combining Transmission Drip Tray Only)
Off Helicopter Task (Forward and Aft Transmission and Apu Drip Trays Only)

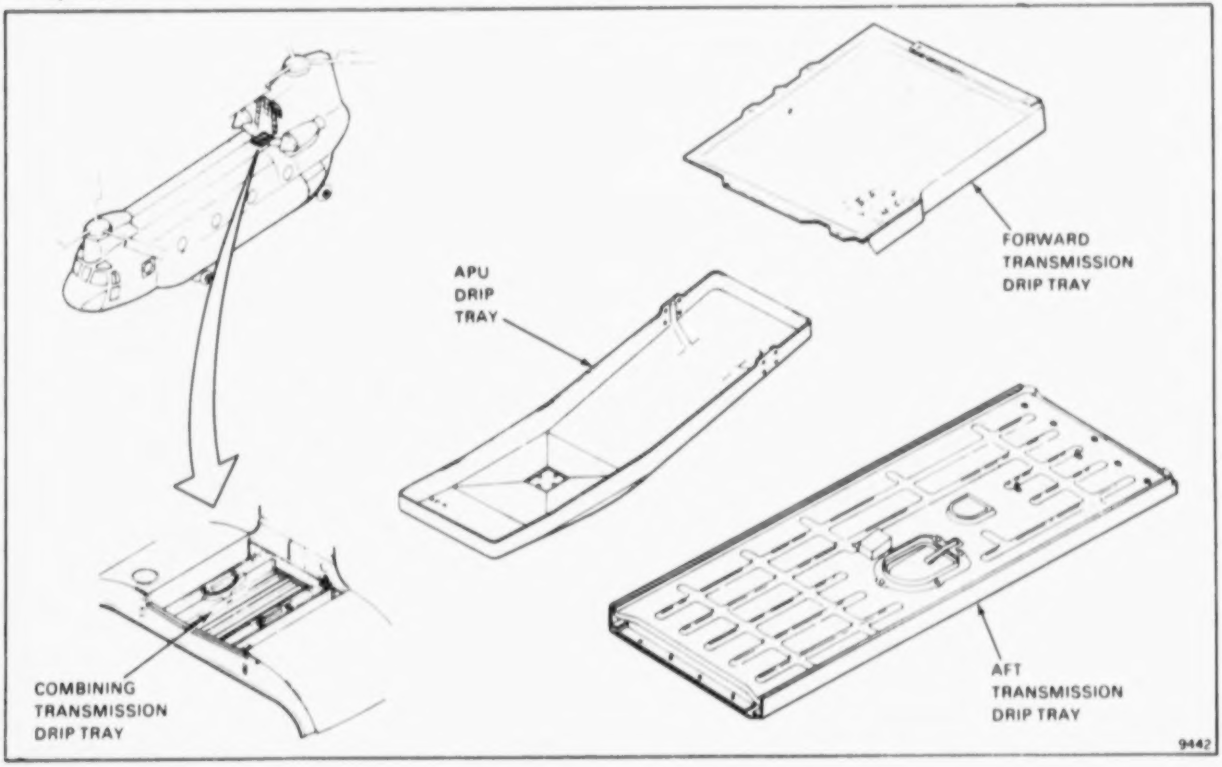
General Safety Instructions:

WARNING

Acetone (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Epoxy resin adhesive (E47) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.


APU DRIP TRAY
FORWARD TRANSMISSION DRIP TRAY
COMBINING TRANSMISSION DRIP TRAY
AFT TRANSMISSION DRIP TRAY
9442

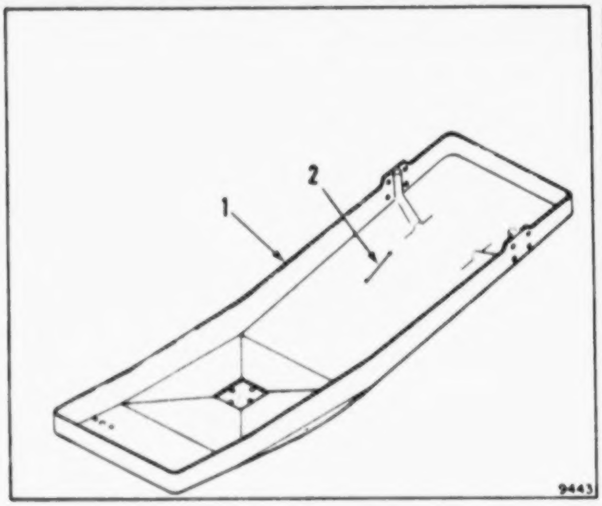
GO TO NEXT PAGE

2-3.1 REPAIR TRANSMISSION AND APU DRIP TRAYS (Continued) 2-3.1

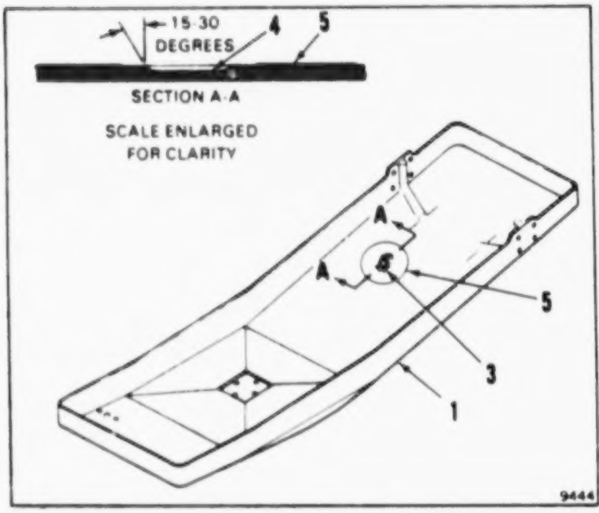
NOTE

The same procedure is used to repair all drip pans. Typical repair of the apu drip tray is shown here.

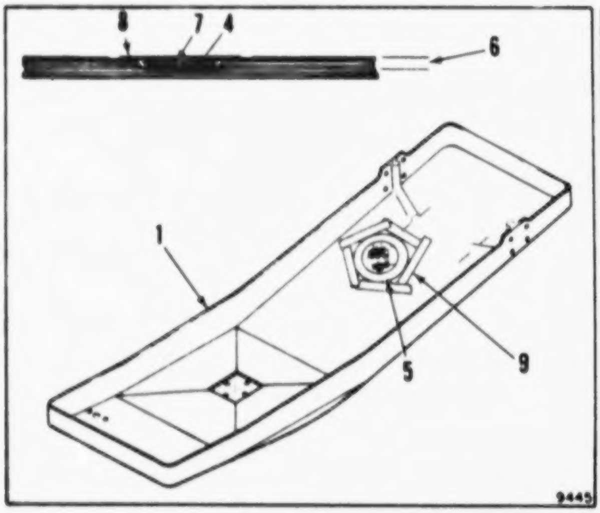
1. **Inspect tray (1)** for extent of damage. Clean damaged area to allow complete inspection. Use acetone (E20) and clean cloths (E120). Wear gloves (E186).
2. **If tray is cracked, stop-drill crack (2)** at each end. **Sand through crack to an uncracked level.** Use abrasive paper (E7).



3. **If tray (1) is torn, ripped, or punctured, clean it for 1.5 inches beyond damage (3)** in all directions. Use acetone (E20) and cloths (E120). Wear gloves (E186).
4. **File or sand damage (3)** to a round or oval shape down to undamaged area (4). Use a file or abrasive paper (E7). **Taper the sides** of the area to 15 to 30 degrees.
5. **Roughen cleaned area (5)** to ensure a good adhesive bond. Use abrasive paper (E12).



6. Note number of plies (6) cut away to reach undamaged area (4). **Cut** a number of pieces of **Kevlar fabric (E209) (7) equal to the number of plies removed.** Cut pieces to overlap and match taper of shape.
7. **Cut** a piece of **Kevlar fabric (E209) (8) large enough to overlap damaged area (3)** 1 inch in all directions.
8. Remove pieces (4 and 8) from tray (1).
9. **Cover tray (1) around cleaned area (5) with Teflon tape (9).**



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2-3.1 REPAIR TRANSMISSION AND APU DRIP TRAYS (Continued) 2-3.1

10. Measure 50 grams of resin (E47) and 6 grams of hardener (E459).

CAUTION

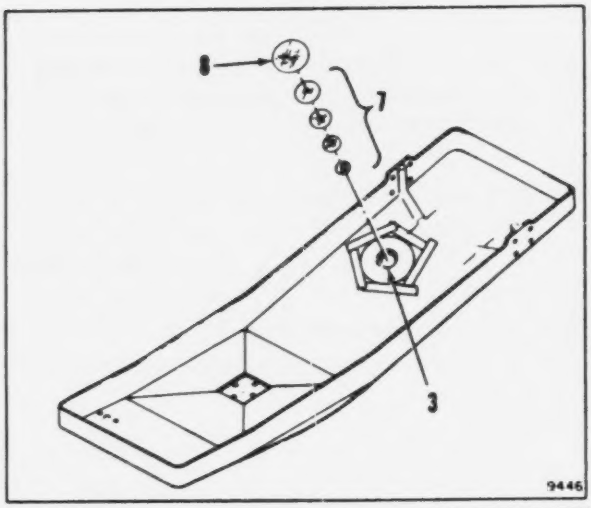
Do not use styrofoam cup. Resin melts styrofoam.

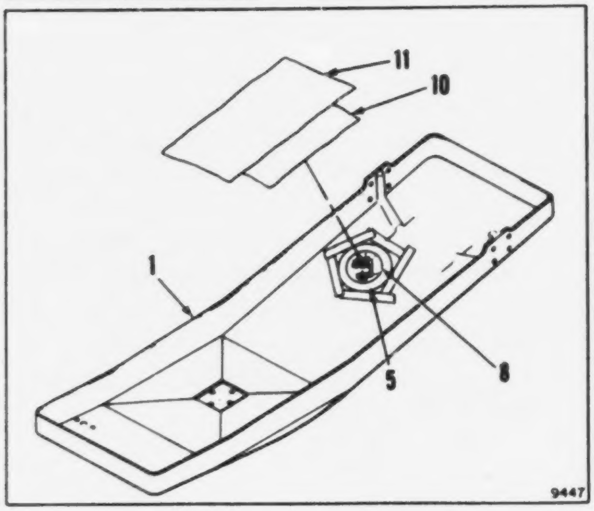
11. **Mix resin (E47) with hardener (E459).** Use polyethylene cup (E157) and wood spatula (E424). Wear gloves (E186).

NOTE

Working life of resin mixture is about 1 hour.

12. **Coat damaged area (3)** with resin mixture. Use brush (E86).
13. Beginning with smallest patch of fabric (E209) (7), **coat each patch with resin mixture and set it in damaged area (3).** Check that each patch overlaps patch below. Last patch (8) shall overlap damaged area 1 inch in all directions.





14. Check that repair is slightly higher than surface of tray (1). Add more pieces of fabric under top patch (8), if needed.
15. **Cover repair** and cleaned area (5) with peel ply (E270) (10). Cover peel ply with Teflon-impregnated fabric (E170) (11).
16. **Place weight on repair area** to provide 2 to 3 psi pressure. Use shot bags or equivalent.

CAUTION

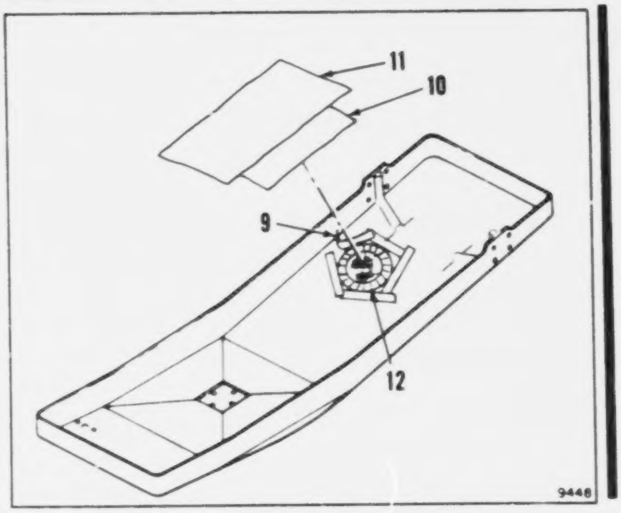
If temperature exceeds 150°F (65°C), tray can be damaged.

17. **Cure resin at 140° to 150°F (60° to 65°C) for 2 hours.** Use infrared lamp and temperature indicating strips (E413).

GO TO NEXT PAGE

2-3.1 REPAIR TRANSMISSION AND APU DRIP TRAYS (Continued) 2-3.1

18. Remove weight, Teflon-impregnated fabric (11) and peel ply (10). Remove Teflon tape (9).
19. **Sand squeezeout (12)** until repair area is smooth. Use abrasive paper (E7).
20. Clean repair area with acetone (E20) and clean cloths (E120). Wear gloves (E186).
21. Sand repair area with abrasive paper (E10).
22. Clean area with acetone (E20) and clean cloths (E120). Wear gloves (E186).
23. Apply one coat of primer (E292). Wear gloves (E186). Allow primer to dry.
24. Apply two coats of epoxy coating (E137). Wear gloves (E186). Allow coating to dry.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-4 INSPECTION OF FUSELAGE AND PYLON DAMAGE (GENERAL INFORMATION) 2-4

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Inspector

References:

TM 55-1500-204-25/1
Task 2-359
Task 2-360
Task 2-324

Equipment Condition:

As Required

General Safety Instructions:

As Required

---

1. Refer to TM 55-I500-204-25/1 for the following:
    a. Determine depth of nicks and scratches.
    b. Find if part is magnesium or aluminum.
    c. Determine type of aluminum alloy.
    d. Detect unbonding and ply separations.
2. If damage was caused by severe impact, and alignment of structure is required, return the helicopter to depot.
3. Check plates, clips, and doublers in area of damage for distortion, security, and elongated holes.
4. Check bulkheads, formers, stringers, supports, beams, decks, and longerons for distortion, cracks, nicks, dents, scratches, elongated holes, and loose or missing rivets or bolts.
5. Check body skin for holes, dents, scratches, cracks, loose or missing rivets.
6. Check body skin for oilcanning (Task 2-359).
7. Check bottom skin surfaces (Task 2-360).
8. Check access doors and panels for cracks, dents, distortion, and security.
9. Check seals for damage and security.
10. Check entire fuselage structure for watertight sealing (Task 2-324), especially the following areas:
    a. Access doors and panels.
    b. Maintenance steps and handgrips.
    c. Manufacturing splices and seams.
    d. External electrical connectors.
    e. Windows and enclosure.
    f. Under cabin fuselage section floor for moisture and corrosion.
11. Following inspection, classify damage as minor, reparable, or non-reparable.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-5 INSPECTION AFTER LIGHTNING STRIKE 2-5

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Inspector
Rotary Wing Aviator (2)

References:
TM 55-1520-240-10
Operational Check of Flight Control Systems
(TM 55-1520-240-T)

Equipment Condition:
None

General Safety Instructions:
As Required

NOTE

Data on helicopters struck by lightning shows that most damage has been to the rotor system.

1. Inspect rotor head for burn marks or pitting following suspected lightning strike. Replace head if marks are visible. Label removed head as being struck by lightning and return head to depot. Inspect drive shaft and flight control bearings for arcing or pits.
2. Inspect the fuselage interior and exterior, the forward and aft landing gear, all wheels and tires. Inspect the static ground wire on the aft left landing gear for burn marks and pitting.
3. Inspect wiring in exposed cabin, fuselage, and pylon areas for burns.
4. Inspect antennas and pitot tubes for burns and pitting.
5. Visually inspect all electrically operated components and lighting systems for damage.
6. Visually inspect communication and navigation equipment for damage
7. Visually inspect AFCS components for damage.
8. Perform an operational check of the flight control system (TM 55-1520-240-T).
9. Visually inspect rotor blades for unbonding of jumpers and any visual arc burns. Repair or replace blade if above conditions are found.
10. Check the magnetic compass for accuracy.
11. Repair any damage and replace damaged components as required using standard maintenance practices.
12. Perform a ground run maintenance operational check of the helicopter. Functionally check the AFCS, all electrical and lighting systems, and the communication and navigation systems (TM 55-1520-240-10).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-6 CLASSIFICATION AND REPAIR OF MINOR DAMAGE (GENERAL INFORMATION) 2-6

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Inspector

References:
Task 2-350

Equipment Condition:
As Required

General Safety Instructions:
As Required

NOTE

Minor damage can exist as is, or can be corrected by a simple procedure without placing restrictions on flight.

1. Simple Procedures:
   a. Stop drilling cracks.
   b. Burnishing or blending scratches or nicks.
   c. Removal of dents.
   d. Application of a temporary fabric patch.
   e. Filling small hole with a rivet.
2. Stop-drill cracks at each sharp corner and at end of crack. Use a 1/32-inch dia. drill.
3. Scratches on internal web and formed parts not deeper than 10 percent of web thickness after burnishing are minor.
4. Scratches shall not be deeper than 10 percent of thickness of thinnest leg after burnishing.
5. Scratches are not permitted on radiuses of any part.
6. Nicks, dents, cracks, and scratches more than 10 percent depth for formed parts are minor if they can be cleaned out to a round hole classified as minor.
7. No holes are permitted in any internal web.
8. Holes 3/16-inch diameter or less shall be plugged with a tight-fitting rivet or bolt.
9. Minor damage shall clear all internal radiuses of formed parts after burnishing.
10. Two adjacent damages classified as minor shall be separated by a 4-inch length of undamaged material. Distance shall be measured from edges of burnished areas.
11. Refinish reworked areas (Task 2-350).
12. ***Loose Fasteners***
   a. *General*
   Residue at fasteners is acceptable structurally, unless fasteners can be moved with the fingers in any direction. (No mechanical tools are to be used.) Looseness or improper fit of fasteners is also indicated by a bright surface area surrounding fastener head or tail. Replace loose fasteners.
   b. *Aft Transmission Mounts*
   Any residue around fasteners in vertical blades of fittings is unacceptable. These fasteners should be replaced. Residue around any other fasteners in web area is acceptable when in accordance with step a.
   c. *Aft Vertical Shaft Mounts*
   Any residue around fasteners in vertical shaft fittings is to be treated the same as for aft transmission. (Refer to step b.)
   d. *Combiner Transmission Mounts*
   Any residue around lower twelve fasteners through combiner box blades, and fasteners through pad of fitting and upper four fasteners through vertical blades, is acceptable when in accordance with step a.
   e. *Swiveling/Pivoting Actuator Mounts*
   Any residue around fasteners for actuator support fittings in vertical blade is unacceptable. Replace these fasteners. Residue around fasteners in portion of fitting on pad in rear of deck is acceptable when in accordance with step a.

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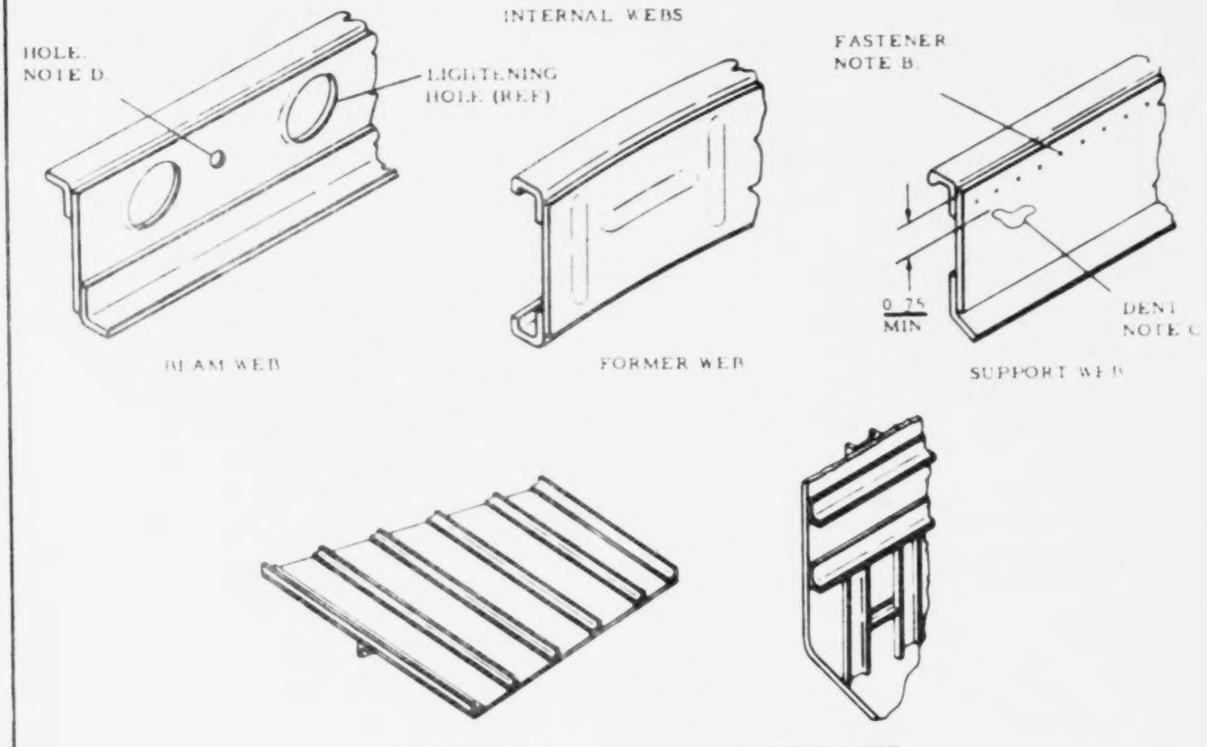
2-6 CLASSIFICATION AND REPAIR OF MINOR DAMAGE (GENERAL INFORMATION)(Continued) 2-6

INTERNAL WEBS



BEAM WEB FORMER WEB SUPPORT WEB

DECK WEB BULKHEAD WEB

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD

C. SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST 0.75

D. NO HOLES PERMITTED UNREPAIRED IN ANY WEBS

42 x 61 D145-8804-SPA

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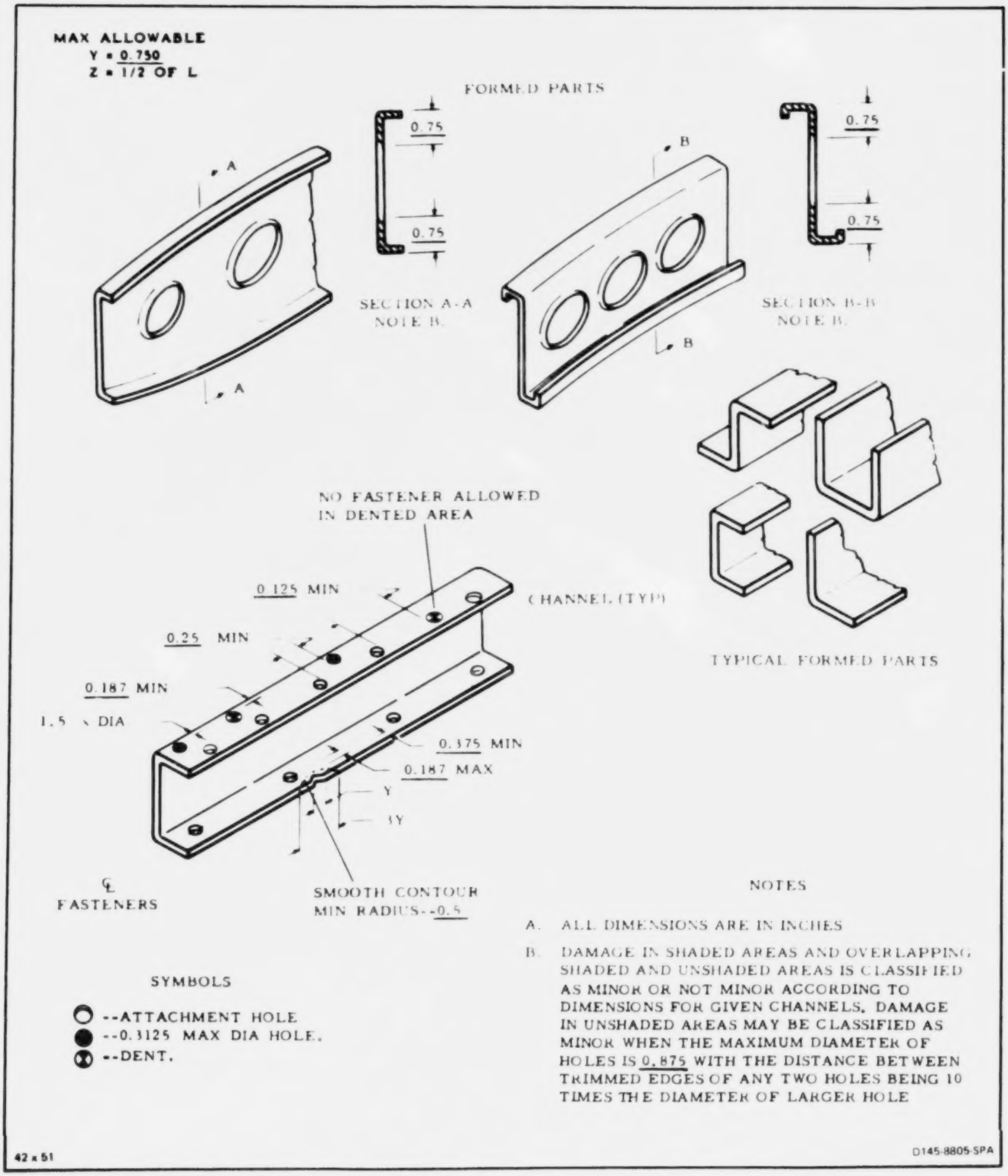
2-6 CLASSIFICATION AND REPAIR OF MINOR DAMAGE (GENERAL INFORMATION)(Continued) 2-6


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
FORMED PARTS
A
A
0.75
0.75
SECTION A-A
NOTE B.
B
B
0.75
0.75
SECTION B-B
NOTE B.
TYPICAL FORMED PARTS
NO FASTENER ALLOWED IN DENTED AREA
0.125 MIN
CHANNEL (TYP)
0.25 MIN
0.187 MIN
1.5 x DIA
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.5
42 x 51
D145-8805-SPA

SYMBOLS

○ --ATTACHMENT HOLE

● --0.3125 MAX DIA HOLE.

⊗ --DENT.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS MINOR OR NOT MINOR ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS MINOR WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-7 CLASSIFICATION OF REPARABLE DAMAGE (GENERAL INFORMATION) 2-7

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Inspector

References:
Task 2-6
Task 2-9
Task 2-10
Task 2-8

Equipment Condition:
As Required

General Safety Instructions:
As Required

NOTE

- Reparable damage exceeds specified minor limits (Task 2-6) but is confined to a small area of a part and is reparable by patching, subject to area involvement.
- Damage that cannot be repaired necessitates replacement. An example is, the loss of a major portion of a section of skin or former. Also, a part that cannot be repaired because of the complexity of the design must be replaced.

1. A patch type repair reinforcement generally does not have to extend the full cross section of a part. In webs, reinforcements do not have to extend from boundary member to boundary member.
2. A filler can be used to compensate for thickness of original material removed in damaged area but should not be considered an insertion.
3. Complete (Task 2-10) or composite (Task 2-9) damage is reparable by insertion of a partial replacement, identical to original.
4. Partial replacement (Task 2-8) is accompanied by a reinforcement representing the full cross section of the original part. In webs, partial replacements should extend from boundary member to boundary member.

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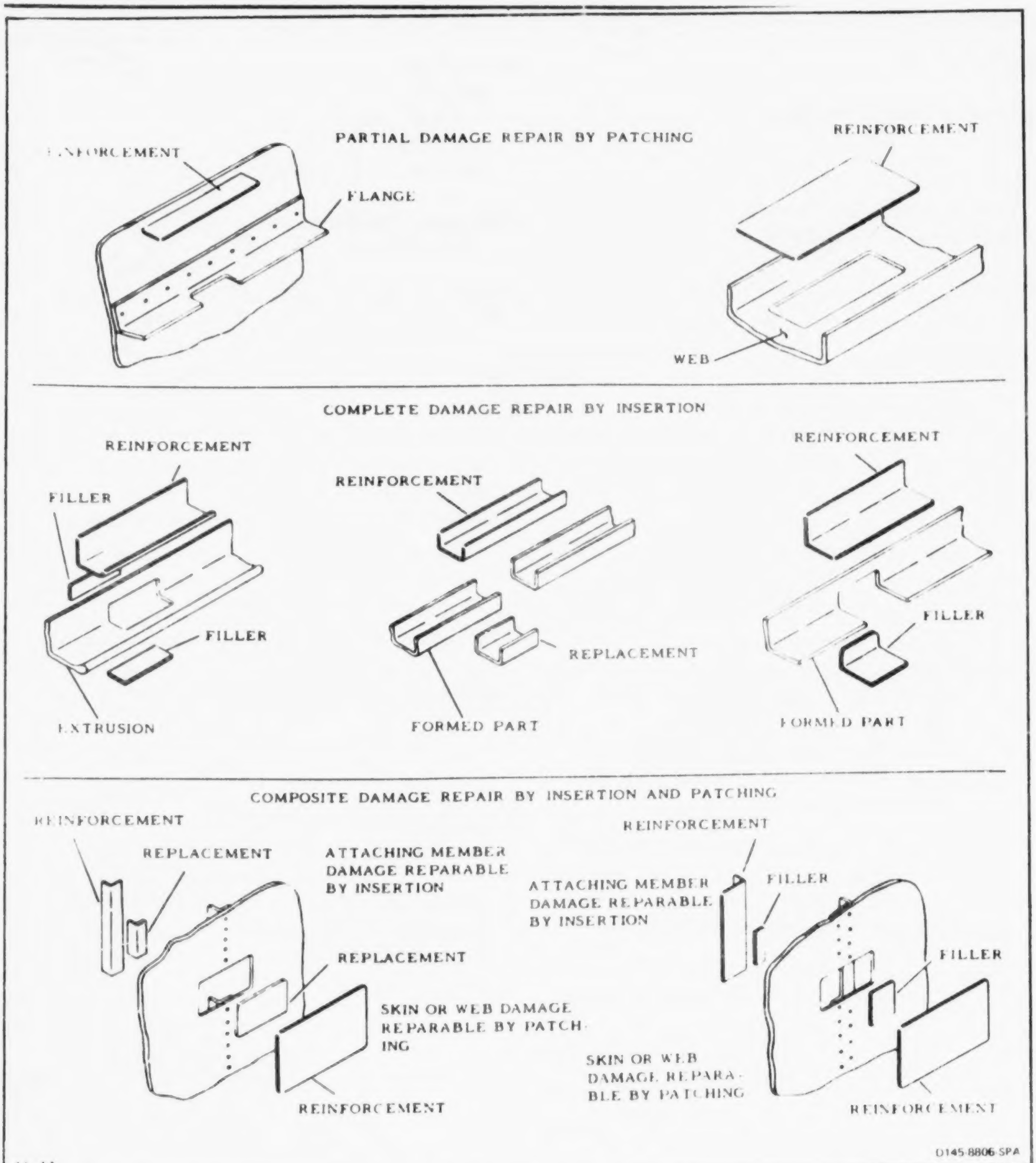
2-7 CLASSIFICATION OF REPARABLE DAMAGE (GENERAL INFORMATION) (Continued) 2-7


PARTIAL DAMAGE REPAIR BY PATCHING
REINFORCEMENT
FLANGE
REINFORCEMENT
WEB
COMPLETE DAMAGE REPAIR BY INSERTION
REINFORCEMENT
FILLER
FILLER
EXTRUSION
REINFORCEMENT
REPLACEMENT
FORMED PART
REINFORCEMENT
FILLER
FORMED PART
COMPOSITE DAMAGE REPAIR BY INSERTION AND PATCHING
REINFORCEMENT
REPLACEMENT
ATTACHING MEMBER DAMAGE REPARABLE BY INSERTION
REPLACEMENT
SKIN OR WEB DAMAGE REPARABLE BY PATCHING
REINFORCEMENT
REINFORCEMENT
ATTACHING MEMBER DAMAGE REPARABLE BY INSERTION
FILLER
FILLER
SKIN OR WEB DAMAGE REPARABLE BY PATCHING
REINFORCEMENT
32 x 51
D145-8806-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-8 PARTIAL DAMAGE REPAIR (GENERAL INFORMATION) 2-8

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspector's Tool Kit,
NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

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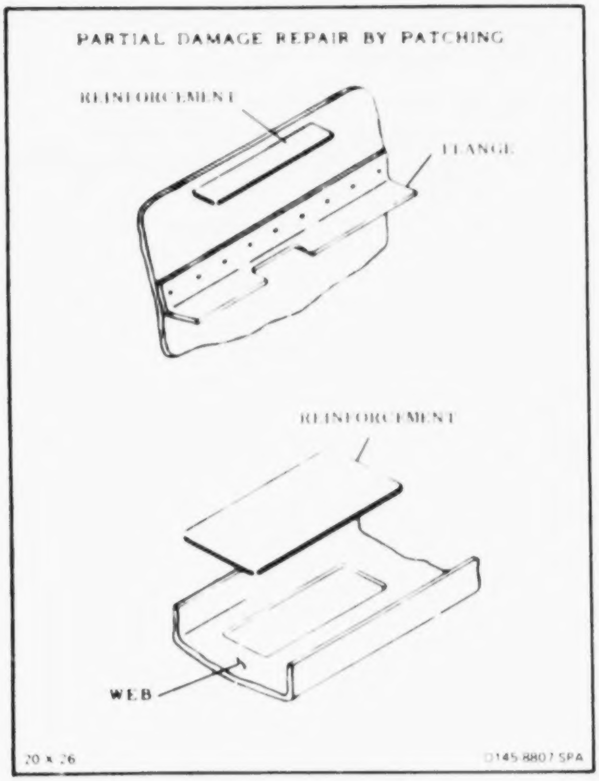
1. Partial damage repair is repair that does not remove more than one flange and may be repaired by patching. Also, repair to skin or webs which is clear of adjacent structural parts after patching.


PARTIAL DAMAGE REPAIR BY PATCHING
REINFORCEMENT
FLANGE
REINFORCEMENT
WEB
20 x 26
D145 8807 SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-9 COMPOSITE DAMAGE REPAIR (GENERAL INFORMATION) 2-9

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

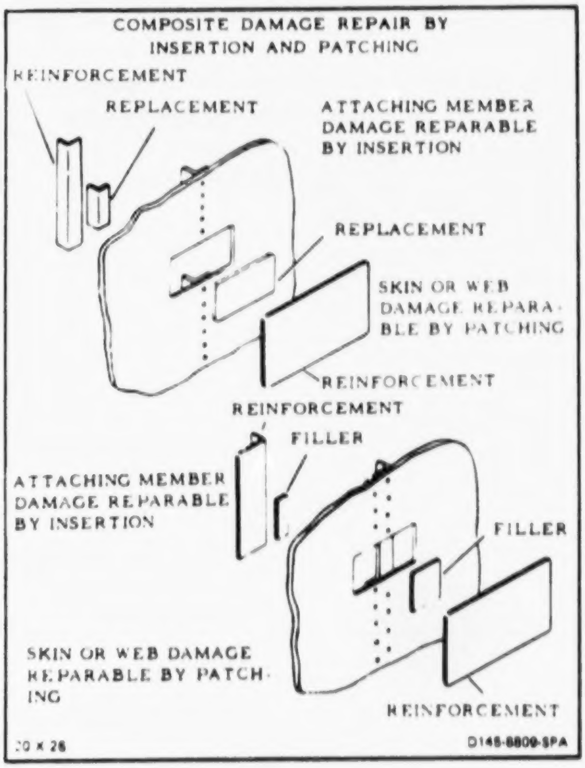
Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Damage greater than minor and occurring to both structural parts and attached skin or web is composite damage.
2. The skin panel, in some cases, will be replaced and attached to the repaired part similar to the original attachment. An exception is the repair area of the part, where the attachments may be governed by the repair of the part.
3. In other cases the skin will be patched when the part is repaired. The method of repair being determined individually for each of the parts under consideration.
4. Extensive damage, such as numerous composite damages, where insufficient undamaged structure remains, or severe distortions or loss of primary parts will, in many instances, necessitate replacement of a structural assembly or complete section of the body group.


COMPOSITE DAMAGE REPAIR BY INSERTION AND PATCHING

REINFORCEMENT
REPLACEMENT
ATTACHING MEMBER DAMAGE REPARABLE BY INSERTION
REPLACEMENT
SKIN OR WEB DAMAGE REPARABLE BY PATCHING
REINFORCEMENT
REINFORCEMENT
FILLER
ATTACHING MEMBER DAMAGE REPARABLE BY INSERTION
FILLER
SKIN OR WEB DAMAGE REPARABLE BY PATCHING
REINFORCEMENT
20 X 26
D145-8809-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-10 COMPLETE DAMAGE REPAIR (GENERAL INFORMATION) (AVIM) 2-10

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Technical Inspector's Tool Kit,
NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Partial Damage Repair (Task 2-8)

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Complete damage repair is damage greater than that defined as partial (Task 2-8) damage, or damage that removes the major portion of the cross section of a part.
   a. Pre-repair steps that remove the heel of an extrusion, the radiuses of a formed part, or affect two flanges at any one location along the part are classified as complete damage.

      NOTE

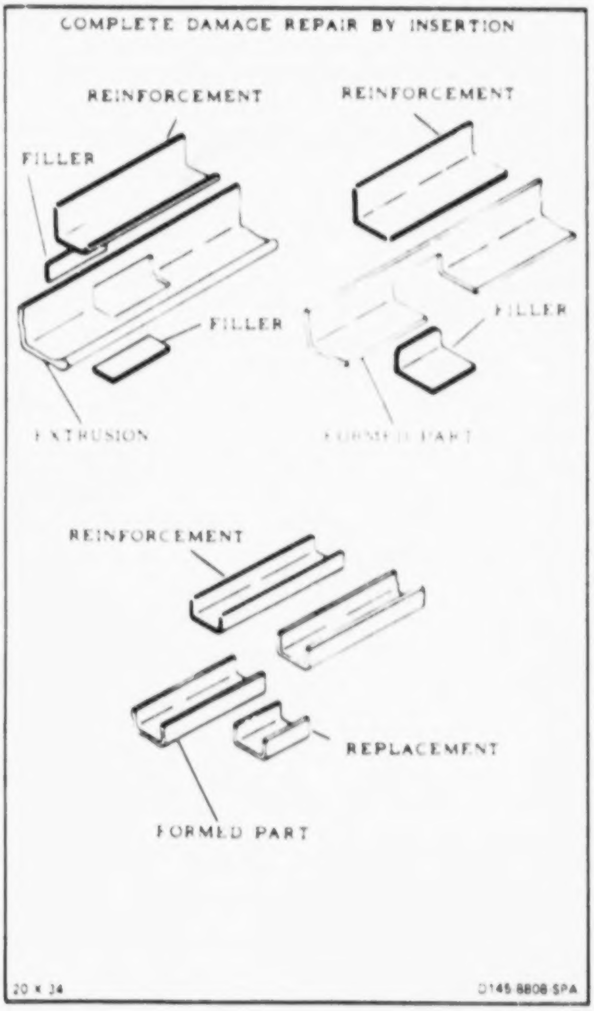
      A small part may be replaced provided it is available or can be made from available material.

   b. Several isolated skin damages too close to permit use of individual patches. Also, isolated damages that require removal of over half the skin or web area between adjacent structural parts are classified as complete damage.
2. Complete damage, except where replacement is more practical, will require repair by insertion.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK


COMPLETE DAMAGE REPAIR BY INSERTION

2-11 SKIN (GENERAL INFORMATION) 2-11

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Inspector

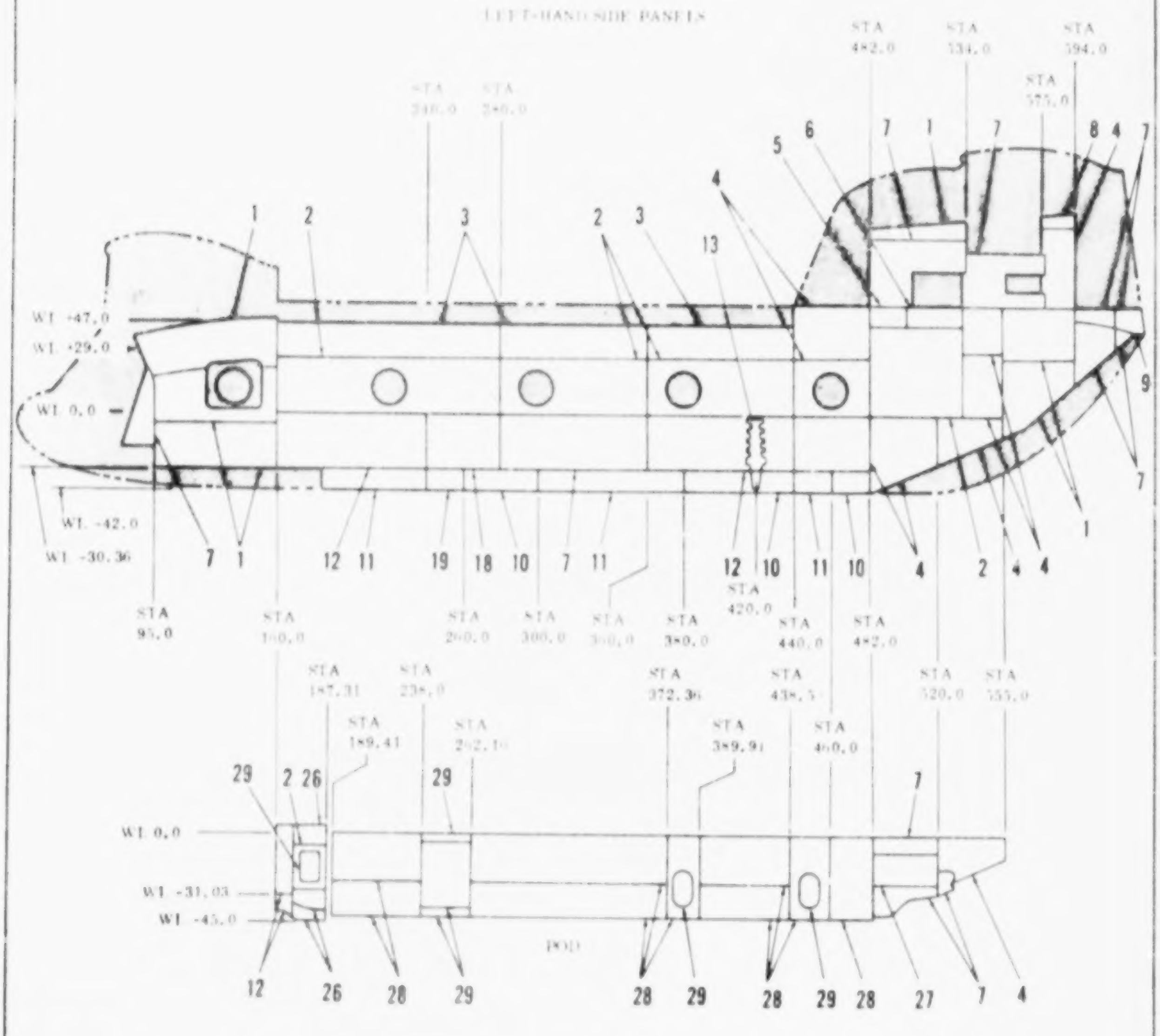
References:
Task 2-12
Task 2-13
Task 2-14
Task 2-359
Task 2-324
Task 2-358
Task 2-357
Task 2-166

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. The skin panels of the major assemblies of the fuselage and aft pylon are aluminum alloy. Variances in skin fabrication materials, such as sandwich-honeycomb or fiberglass, are described in the component definition.
2. Identify the skin panels, original and repair material. Below the waterline, skin panels are sealed watertight. Above the waterline, the skin panels are sealed weathertight.
3. Classify skin damage as minor (Task 2-12), reparable (Task 2-13), or needing replacement (Task 2-14).

GO TO NEXT PAGE

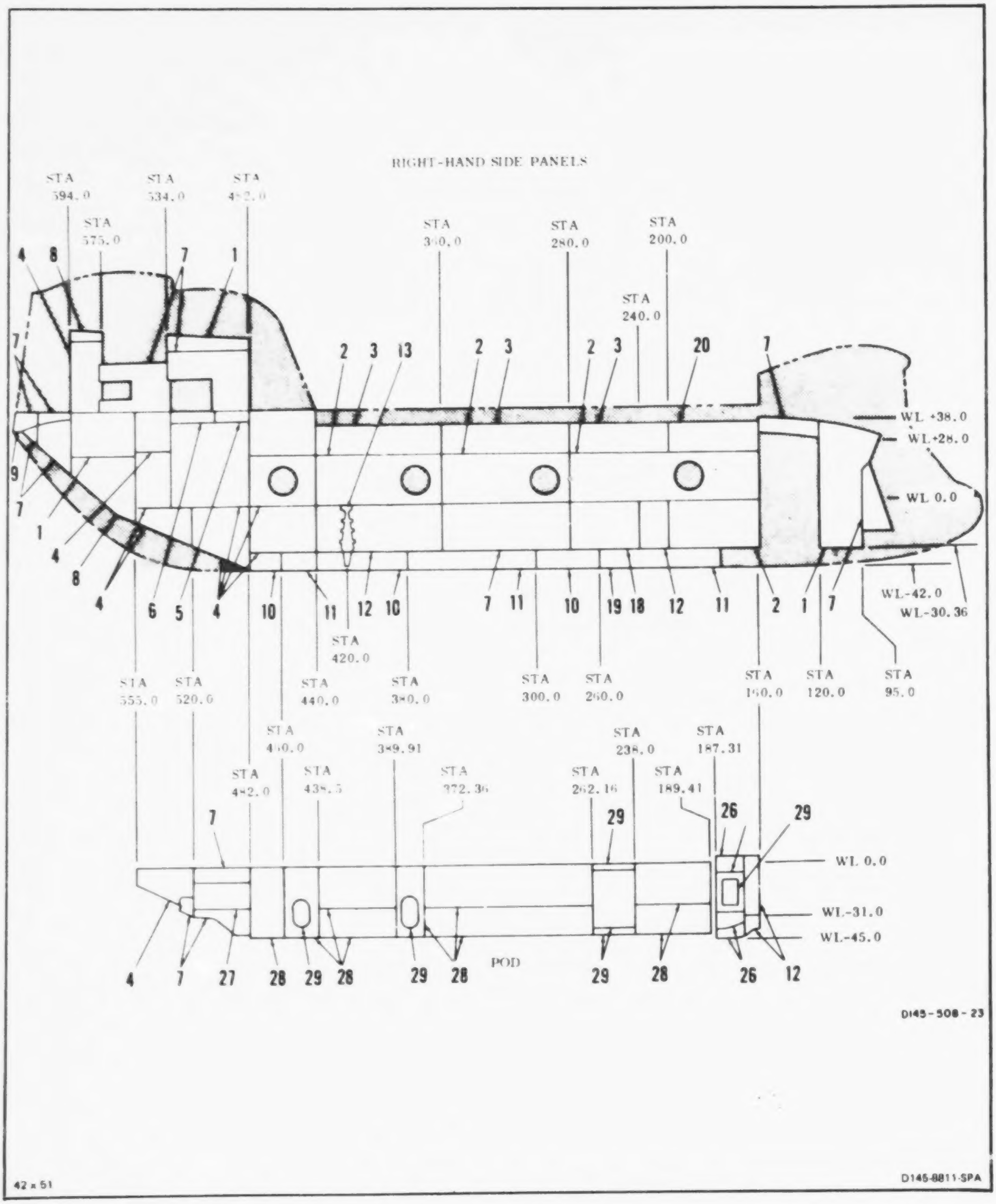

LEFT-HAND SIDE PANELS
STA 482.0
STA 534.0
STA 594.0
STA 575.0
STA 240.0
STA 280.0
5
6
7
1
7
8
4
7
4
1
2
3
2
3
13
WL +47.0
WL +29.0
WL 0.0
9
7
WL -42.0
WL -30.36
7
1
12
11
19
18
10
7
11
12
10
11
10
4
2
4
4
1
STA 95.0
STA 160.0
STA 260.0
STA 300.0
STA 340.0
STA 380.0
STA 420.0
STA 440.0
STA 482.0
STA 187.31
STA 238.0
STA 189.41
STA 252.16
STA 372.36
STA 389.91
STA 438.5
STA 460.0
STA 520.0
STA 555.0
29
2
26
29
7
WL 0.0
WL -31.03
WL -45.0
POD
12
26
28
29
28
29
28
29
28
27
7
4

42 x 51

D145-8810-SPA

GO TO NEXT PAGE

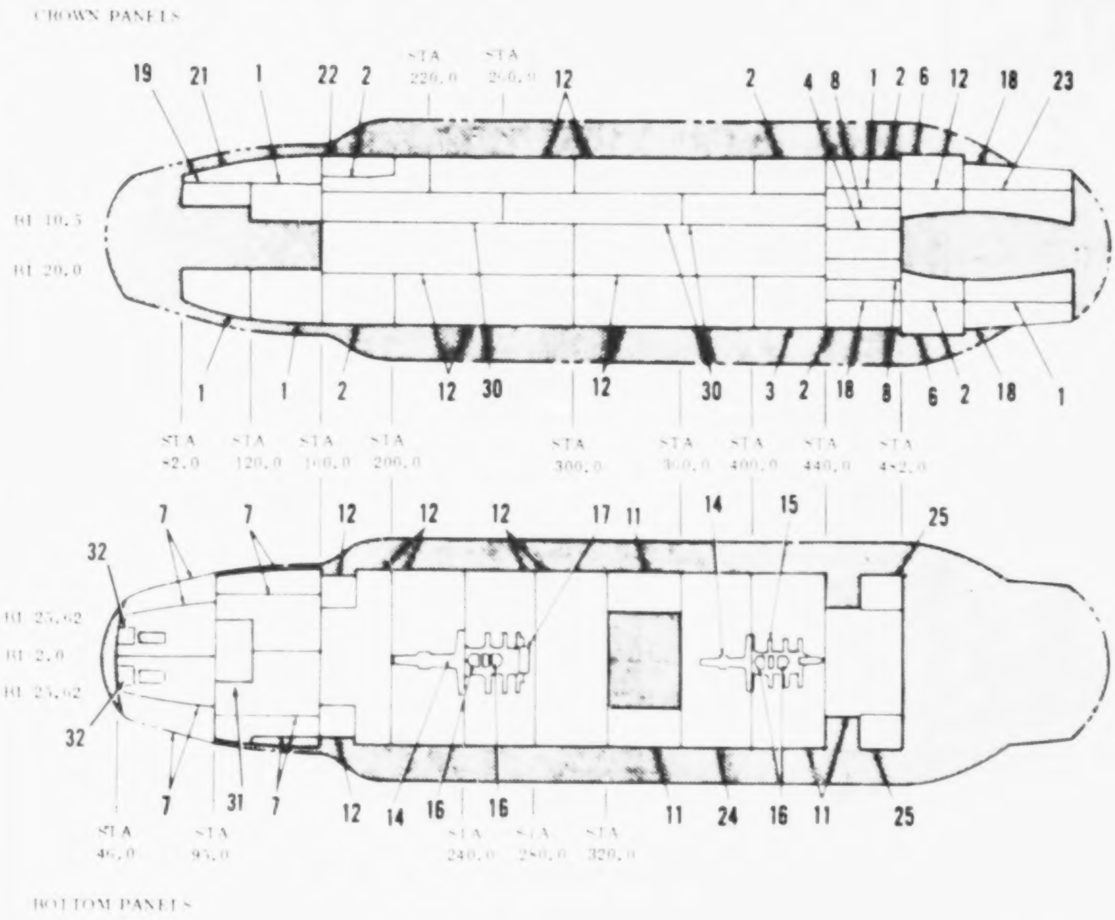
Skin Repair (Sheet 1 of 4)


RIGHT-HAND SIDE PANELS
STA 594.0
STA 534.0
STA 482.0
STA 575.0
STA 340.0
STA 280.0
STA 200.0
STA 240.0
4
8
7
1
2
3
13
2
3
2
3
20
7
7
WL +38.0
WL +28.0
WL 0.0
9
7
1
4
8
4
6
5
4
10
11
12
10
7
11
10
19
18
12
11
2
1
7
WL -42.0
WL -30.36
STA 420.0
STA 555.0
STA 520.0
STA 440.0
STA 380.0
STA 300.0
STA 260.0
STA 160.0
STA 120.0
STA 95.0
STA 460.0
STA 349.91
STA 238.0
STA 187.31
STA 482.0
STA 438.5
STA 372.36
STA 262.16
STA 189.41
7
29
26
29
WL 0.0
WL -31.0
WL -45.0
4
7
27
28
29
28
29
28
POD
29
28
26
12
D145-508-23
42 x 51
D145-8811-SPA

GO TO NEXT PAGE

Skin Repair (Sheet 2 of 4)

2-11 SKIN (GENERAL INFORMATION) (Continued) 2-11


CROWN PANELS
STA 220.0
STA 260.0
19
21
1
22
2
12
2
4
8
1
2
6
12
18
23
BL 10.5
BL 20.0
1
1
2
12
30
12
30
3
2
18
8
6
2
18
1
STA 82.0
STA 120.0
STA 160.0
STA 200.0
STA 300.0
STA 360.0
STA 400.0
STA 440.0
STA 482.0
7
7
12
12
12
17
11
14
15
25
32
BL 25.62
BL 2.0
BL 25.62
32
7
31
7
12
14
16
16
11
24
16
11
25
STA 46.0
STA 95.0
STA 240.0
STA 280.0
STA 320.0
BOTTOM PANELS
42 x 51
D145-8812-SPA

GO TO NEXT PAGE

Skin Repair (Sheet 3 of 4)

LEFT-HAND SIDE, RIGHT-HAND SIDE, CROWN, AND BOTTOM BODY SKIN PANELS

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN PANEL	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
2	SKIN PANEL	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
3	SKIN PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
4	SKIN PANEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
5	SHELF	0.032 321 (OR 347) ANL CRES	0.040 321 (OR 347) ANL CRES
6	SKIN PANEL	0.020 301 ANL CRES	0.025 301 ANL CRES
7	SKIN PANEL	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
8	SKIN PANEL	0.063 2024-T4 CLAD	0.063 2024-T4 CLAD
9	TRAILING EDGE CLOSURE PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
10	SKIN PANEL	0.040 7075-T6 CLAD	0.050 7075-T6 CLAD
11	SKIN PANEL	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD
12	SKIN PANEL	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
13	STRAP	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD
14	FINGER PLATE	0.100 7075-T6 BARE	0.100 7075-T6 CLAD
15	STRAP	0.160 7075-T6 BARE	0.160 7075-T6 CLAD
16	COVER	0.032 2024-T3 CLAD	0.032 2024-T3 CLAD
17	COVER	0.032 7075-T6 CLAD	0.032 7075-T6 CLAD
18	SKIN PANEL	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
19	SKIN PANEL	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD
20	SKIN PANEL	0.050 2024-T4 CLAD	0.063 2024-T3 CLAD
21	SKIN PANEL	0.071 2024-T4 CLAD	0.071 2024-T3 CLAD
22	SKIN PANEL	0.070 2024-T4 CLAD	0.070 2024-T3 CLAD
23	SKIN PANEL	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD
24	SKIN PANEL	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD
25	SKIN PANEL	0.063 7075-T6 CLAD	0.063 7075-T6 CLAD
26	SKIN PANEL	0.020 2024-T3 CLAD	0.025 2024-T3 CLAD
27	SKIN PANEL	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
28	PANEL	REFER TO NOTE E	—
29	ACCESS PANEL	REFER TO NOTE F	—
30	WALKWAY	REFER TO NOTE G	—

NOTES:

A. Dimensions are in inches.

B. Stations and waterlines represent the centerline of skin joints.

C. Refer to Task 2-359 for information on oilcan inspection and repair and to Task 2-324 for information on watertight sealing.

D. See Task 2-12 for minor damage to skin panels.

E. The panels (28) are sandwich honeycomb structures. Refer to Task 2-358 for repair information.

F. See Task 2-357 for information on repair of access doors and panels.

G. The cabin crown walkways (30) are sandwich honeycomb structures, refer to Task 2-166.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-12 SKIN MINOR DAMAGE (GENERAL INFORMATION) 2-12

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Inspector

References:
Task 2-11

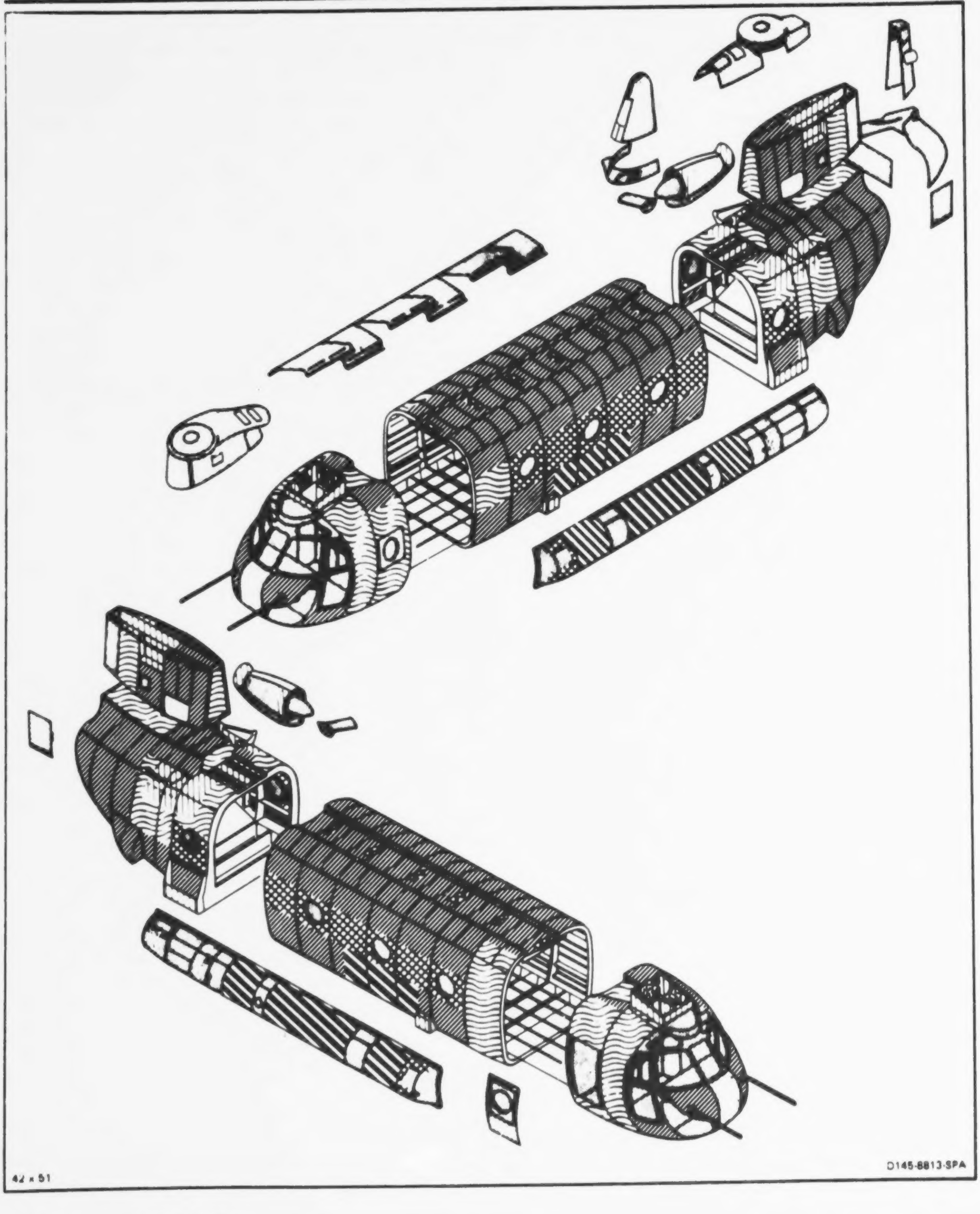
Equipment Condition:
As Required

General Safety Instructions:
As Required

Examples of minor damage are nicks and scratches whose depth after burnishing does not exceed 10 percent of the thickness of the material Holes and cracks shall not exceed limits shown in accompanying charts

GO TO NEXT PAGE

2-12 SKIN MINOR DAMAGE (GENERAL INFORMATION) (Continued)


42 x 51
D145-8813-SPA

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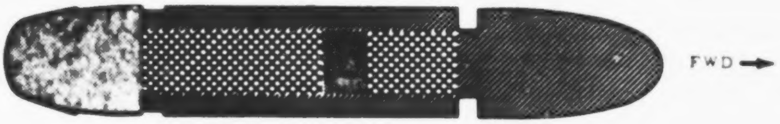
2-12 SKIN MINOR DAMAGE (GENERAL INFORMATION) (Continued) 2-12

REPAIR LIMITATION KEY

■	REFER TO NOTE B.	▨	REFER TO NOTE E.
▦	REFER TO NOTE C.	≋	REFER TO NOTE F.
■	REFER TO NOTE D.	▥	REFER TO NOTE G.



BOTTOM

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. HOLES ARE ALLOWED IN THESE AREAS IF THE PART IS SECURELY ATTACHED TO THE HELICOPTER. THE PART SHOULD BE REMOVED IF YOU ARE NOT SURE THE PART IS ON TIGHT

C. HOLES ARE ALLOWED IN THESE AREAS IF NO ONE HOLE EXCEEDS 3.0 DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES IS TEN TIMES THE DIAMETER OF THE LARGEST HOLE

D. HOLES IN THESE AREAS MUST BE TRIMMED ROUND AND THEIR EDGES SMOOTHED PRIOR TO FLIGHT. THE TRIMMED HOLE SHOULD NOT EXCEED 1.0 DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES MUST BE TEN TIMES THE DIAMETER OF THE LARGEST HOLE

E. HOLES ARE ALLOWED IN THESE AREAS PROVIDING NONE EXCEED 0.5 DIAMETER AND THE MINIMUM DISTANCE BETWEEN NEAREST HOLES IS NOT LESS THAN 5.0. HOLES IN THESE AREAS CAN RESULT IN FUEL CELL DAMAGE WHICH MUST BE EVALUATED AND REPAIRED AS DIRECTED IN TASK 10-10 AND 10-11.

F. HOLES IN THESE AREAS MUST BE REPAIRED, HOWEVER, IF REQUIRED, THE RESTRICTIONS OF NOTE D. CAN BE APPLIED AND A ONE-TIME FLIGHT PERMITTED WITHIN THE FOLLOWING LIMITATIONS:
   1. 33,000 POUND MAXIMUM GROSS WEIGHT
   2. 6 HOUR MAXIMUM FLIGHT DURATION
   3. MINIMUM FLIGHT MANEUVERS

   HOLES MUST BE REPAIRED BEFORE THE LIMITED FLIGHT

G. HOLES IN THESE AREAS MUST BE REPAIRED, HOWEVER, IF REQUIRED, THE RESTRICTIONS OF NOTE D. CAN BE APPLIED AND A ONE-TIME FLIGHT PERMITTED WITHIN THE FOLLOWING LIMITATIONS
   1. 33,000 POUND MAXIMUM GROSS WEIGHT
   2. 2 HOUR MAXIMUM FLIGHT DURATION
   3. MINIMUM FLIGHT MANEUVERS
   4. 3.0 FEET PER SECOND MAXIMUM LANDING SINK SPEED

   HOLES MUST BE REPAIRED BEFORE THE LIMITED FLIGHT

H. CRACKS IN ALL AREAS ARE PERMITTED, ONLY IF THEY ARE WITHIN THE LIMITATIONS FOR HOLES. CRACKS MUST BE STOP-DRILLED TO PREVENT SPREADING. IF POSSIBLE, DAMAGE ABOVE WATERLINE 0.0 SHOULD HAVE A TEMPORARY PATCH APPLIED IN AREAS WHERE WEATHER-TIGHTNESS IS REQUIRED. OPERATIONS OVER WATER SHOULD NOT BE ATTEMPTED IF UNREPAIRED DAMAGE EXISTS BELOW WATERLINE 0.0. ALL DAMAGE SHOULD BE PERMANENTLY REPAIRED AT THE EARLIEST OPPORTUNITY. SEE TASK 2-13 FOR INFORMATION ON PATCHES.

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FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) 2-13

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-12
Task 2-11

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Reparable damage is more extensive than minor damage (Task 2-12). After pre-repair steps, reparable damage shall not affect more than 25 percent of skin area between boundary members and area which clears structural members.
2. Reparable damage requires less than a full skin panel insertion.
3. Refer to Task 2-11 for general location.

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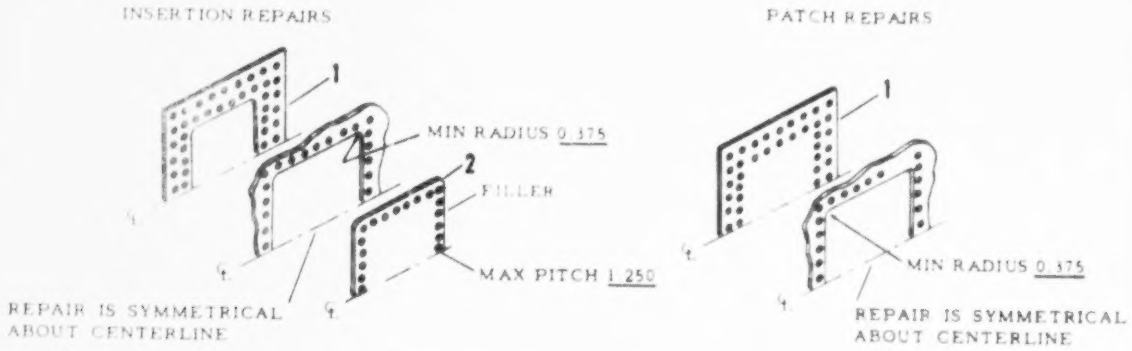
2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13

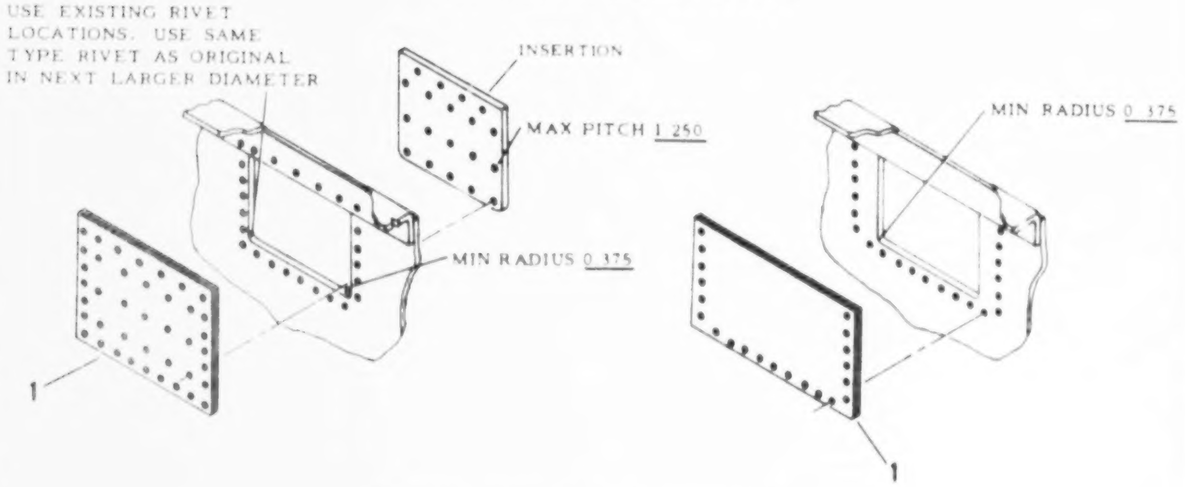
LIGHTLY STRESSED REPAIRS


INSERTION REPAIRS

PATCH REPAIRS

1
MIN RADIUS 0.375
2
FILLER
MAX PITCH 1.250
℄
℄
℄
REPAIR IS SYMMETRICAL ABOUT CENTERLINE
1
MIN RADIUS 0.375
℄
REPAIR IS SYMMETRICAL ABOUT CENTERLINE

RECTANGULAR DAMAGE CUTOUT


USE EXISTING RIVET LOCATIONS. USE SAME TYPE RIVET AS ORIGINAL IN NEXT LARGER DIAMETER
INSERTION
MAX PITCH 1.250
MIN RADIUS 0.375
1
MIN RADIUS 0.375
1

DAMAGE NEAR EXISTING STRUCTURE

REPAIR PARTS

1 REINFORCEMENT. SEE APPLICABLE FIGURE FOR REPAIR MATERIAL AND THICKNESS. USE SAME MATERIAL AND THICKNESS AS ORIGINAL IF SPECIFIC REPAIR FIGURE DOES NOT EXIST

2 REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL.

NOTE

ALL DIMENSIONS ARE IN INCHES

42 x 61

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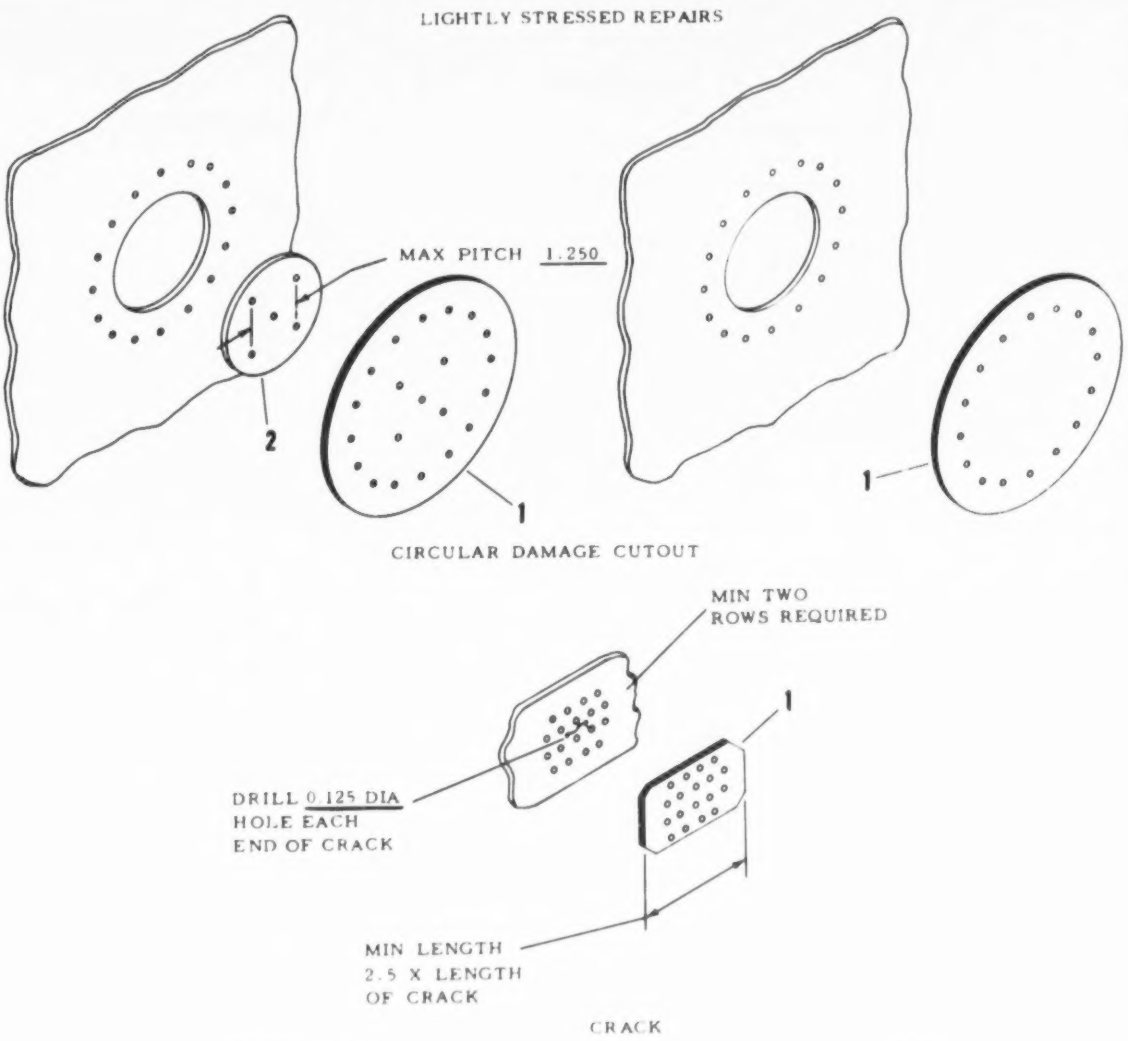
Skin and Web Repairs (Sheet 1 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13


LIGHTLY STRESSED REPAIRS
MAX PITCH 1.250
2
1
1
CIRCULAR DAMAGE CUTOUT
MIN TWO ROWS REQUIRED
1
DRILL 0.125 DIA HOLE EACH END OF CRACK
MIN LENGTH 2.5 X LENGTH OF CRACK
CRACK

REPAIR PARTS

1. REINFORCEMENT. SEE APPLICABLE FIGURE FOR REPAIR MATERIAL AND THICKNESS. USE SAME MATERIAL AND THICKNESS AS ORIGINAL IF A SPECIFIC REPAIR FIGURE DOES NOT EXIST
2. REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

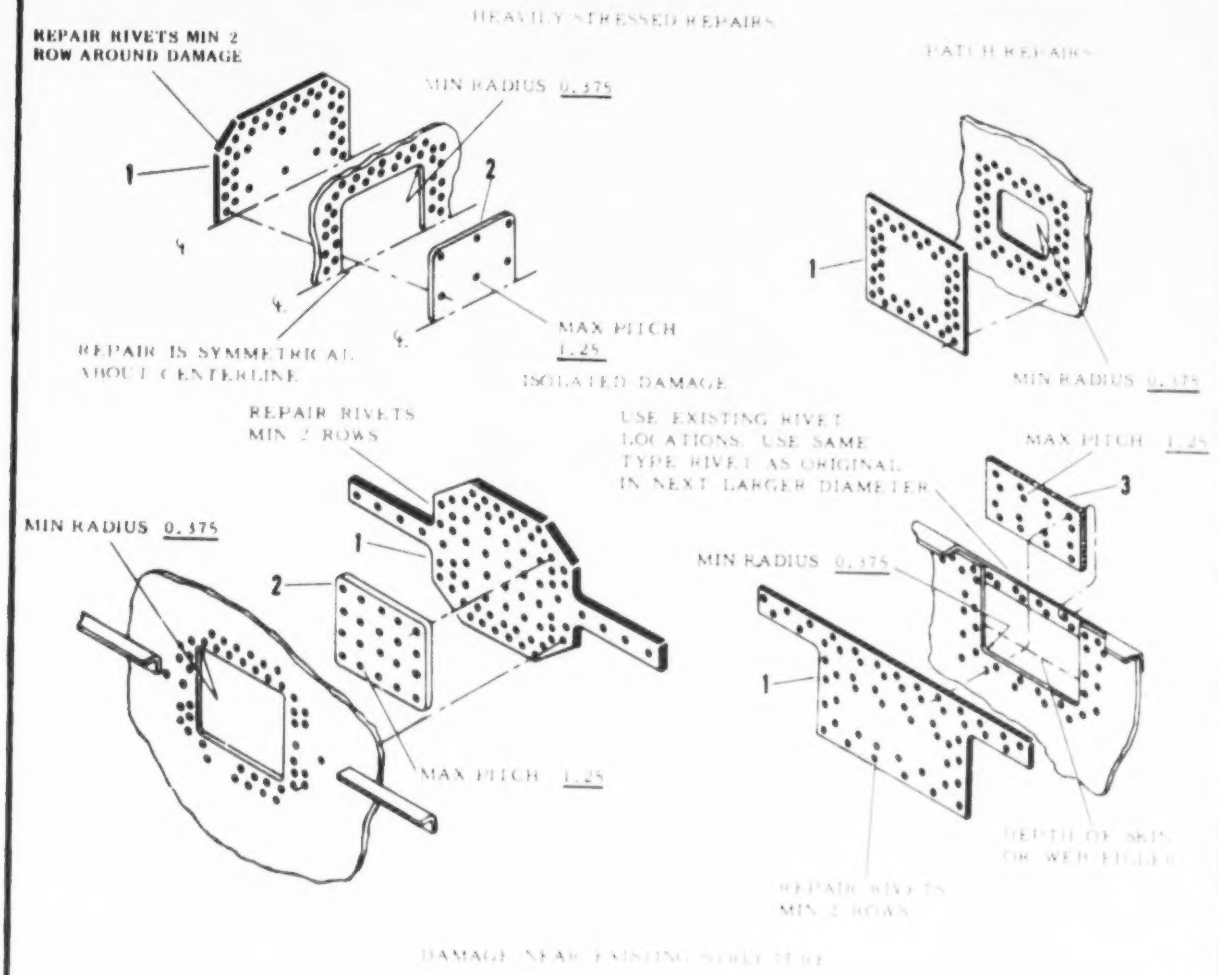
42 x 61

D145-8816-SPA

Skin and Web Repairs (Sheet 2 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13


HEAVILY STRESSED REPAIRS
REPAIR RIVETS MIN 2 ROW AROUND DAMAGE
MIN RADIUS 0.375
1
2
℄
℄
℄
REPAIR IS SYMMETRICAL ABOUT CENTERLINE
MAX PITCH 1.25
ISOLATED DAMAGE
PATCH REPAIRS
1
MIN RADIUS 0.375
REPAIR RIVETS MIN 2 ROWS
MIN RADIUS 0.375
1
2
MAX PITCH 1.25
USE EXISTING RIVET LOCATIONS. USE SAME TYPE RIVET AS ORIGINAL IN NEXT LARGER DIAMETER
MAX PITCH 1.25
3
MIN RADIUS 0.375
1
DEPTH OF SKIN OR WEB FILLED
REPAIR RIVETS MIN 2 ROWS
DAMAGE NEAR EXISTING STRUCTURE

REPAIR PARTS

1. REINFORCEMENT. SEE APPLICABLE FIGURE FOR REPAIR MATERIAL AND THICKNESS. SEE SHEET 6 OF THIS FIGURE IF A SPECIFIC REPAIR FIGURE DOES NOT EXIST
2. REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL
3. FILLER. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. A STRAP PATCH, SHOWN ON SHEET [illegible] OF THIS FIGURE, CAN BE USED AS AN ALTERNATE FOR THE TABS SHOWN ON REINFORCEMENTS (1)

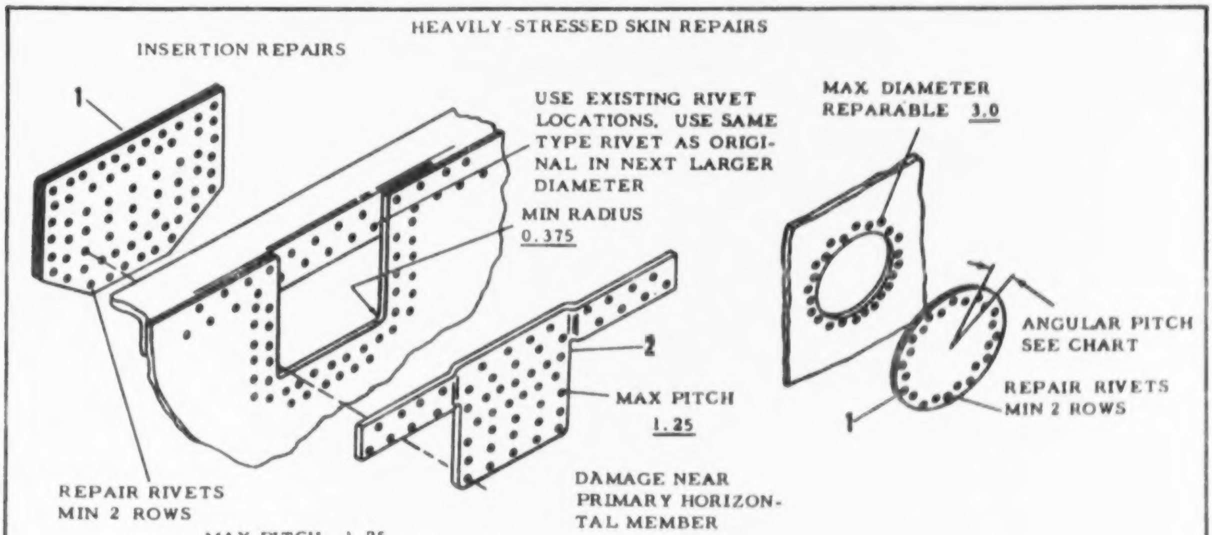
42 x 61

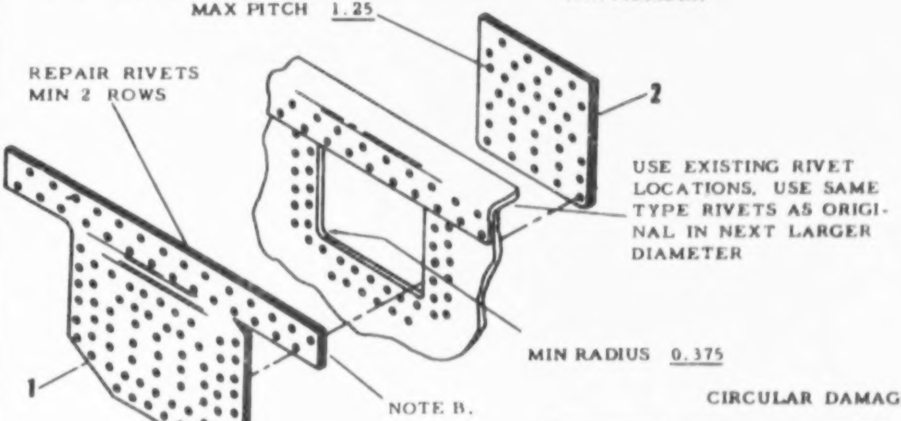
D145-8817 SPA

Skin and Web Repairs (Sheet 3 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13


HEAVILY-STRESSED SKIN REPAIRS
INSERTION REPAIRS
1
USE EXISTING RIVET LOCATIONS. USE SAME TYPE RIVET AS ORIGINAL IN NEXT LARGER DIAMETER
MIN RADIUS 0.375
2
MAX PITCH 1.25
REPAIR RIVETS MIN 2 ROWS
DAMAGE NEAR PRIMARY HORIZONTAL MEMBER
MAX DIAMETER REPARABLE 3.0
ANGULAR PITCH SEE CHART
REPAIR RIVETS MIN 2 ROWS
1


MAX PITCH 1.25
REPAIR RIVETS MIN 2 ROWS
2
USE EXISTING RIVET LOCATIONS. USE SAME TYPE RIVETS AS ORIGINAL IN NEXT LARGER DIAMETER
MIN RADIUS 0.375
1
NOTE B.
DAMAGE NEAR ADJACENT MEMBER

CIRCULAR DAMAGE REPAIR

DESIGNATION	HOLE DIAMETER		
	1.0	2.0	3.0
OD OF CIRCULAR REINFORCEMENT	2.50	5.0	7.50
DIAMETER OF OUTER RIVET CIRCLE	1.750	4.0	6.50
DIAMETER OF INNER RIVET CIRCLE	-	3.0	4.0
(AP) ANGULAR RIVET PITCH	45°	22°30'	15°
NUMBER OF RIVETS REQUIRED (MIN)	8	16	24

REPAIR PARTS

1. REINFORCEMENT. SEE APPLICABLE FIGURE FOR REPAIR MATERIAL AND THICKNESS. SEE SHEET 6 OF THIS FIGURE IF A SPECIFIC REPAIR FIGURE DOES NOT EXIST
2. REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. A STRAP PATCH, SHOWN ON SHEET 5 OF THIS FIGURE, CAN BE USED AS AN ALTERNATE FOR THE TABS SHOWN ON REINFORCEMENTS (1)

42 x 51

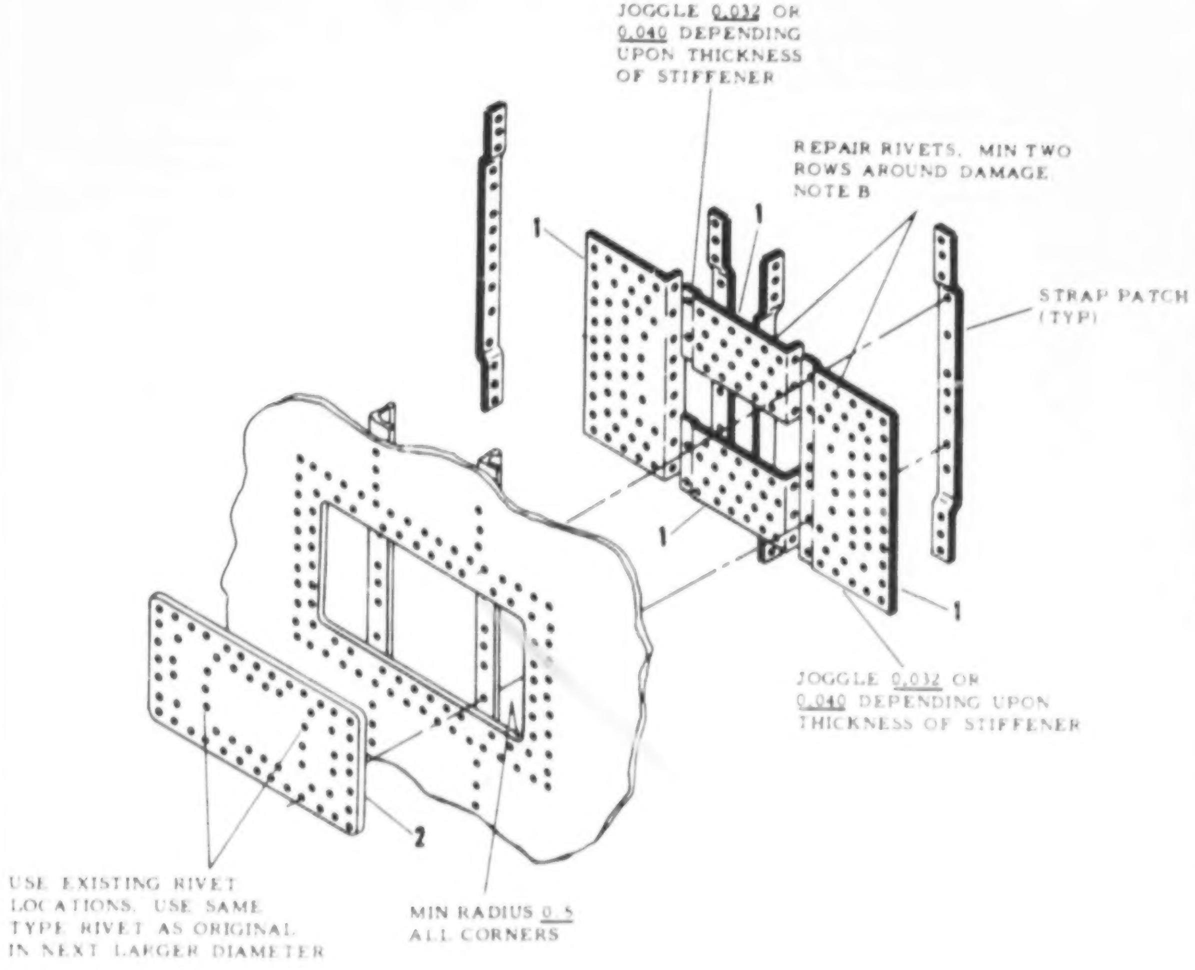
D145-8818 SPA

Skin and Web Repairs (Sheet 4 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13

INSERTION SKIN REPAIR ACROSS STIFFENERS


JOGGLE 0.032 OR 0.040 DEPENDING UPON THICKNESS OF STIFFENER
REPAIR RIVETS, MIN TWO ROWS AROUND DAMAGE. NOTE B
STRAP PATCH (TYP)
1
1
1
1
2
JOGGLE 0.032 OR 0.040 DEPENDING UPON THICKNESS OF STIFFENER
USE EXISTING RIVET LOCATIONS. USE SAME TYPE RIVET AS ORIGINAL IN NEXT LARGER DIAMETER
MIN RADIUS 0.5 ALL CORNERS

REPAIR PARTS

1. SKIN REINFORCEMENT. SEE APPLICABLE FIGURE FOR REPAIR MATERIAL AND THICKNESS. SEE SHEET 6 OF THIS FIGURE IF A SPECIFIC REPAIR FIGURE DOES NOT EXIST
2. SKIN REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. SEE APPLICABLE FIGURE FOR ORIGINAL.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. WHERE DAMAGED AREA CROSSES A STIFFENER OR STRINGER, WIDEN THE REINFORCEMENT TO FORM TABS, OR ADD A STRAP PATCH, AS SHOWN. PICK UP A TOTAL OF FIVE RIVETS EACH SIDE FOR SINGLE-ROW PATTERNS, EIGHT RIVETS EACH SIDE FOR MULTIPLE-ROW PATTERNS

42 x 61

Skin and Web Repairs (Sheet 5 of 9)

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2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13

REINFORCEMENT SELECTION

2024-T3 AND T4 REPAIR WITH 2024-T3, AND 7075-T6 REPAIR WITH 7075-T6

ORIGINAL THICKNESS	REINFORCEMENT THICKNESS
0.012	0.016
0.016	0.020
0.020	0.025
0.025	0.032
0.032	0.040
0.040	0.050
0.050	0.050
0.063	0.063
0.071	0.071
0.080	0.081
0.090	0.090
0.100	0.100
0.125	0.125

7075-T6 REPAIR WITH 2024-T3

ORIGINAL THICKNESS	REINFORCEMENT THICKNESS
0.012	0.020
0.016	0.025
0.020	0.032
0.025	0.040
0.032	0.050
0.040	0.063
0.050	0.071
0.063	0.080
0.071	0.090
0.080	0.100
0.090	0.125
0.100	0.160
0.125	0.160

301 AND 302 REPAIR WITH SAME MATERIAL

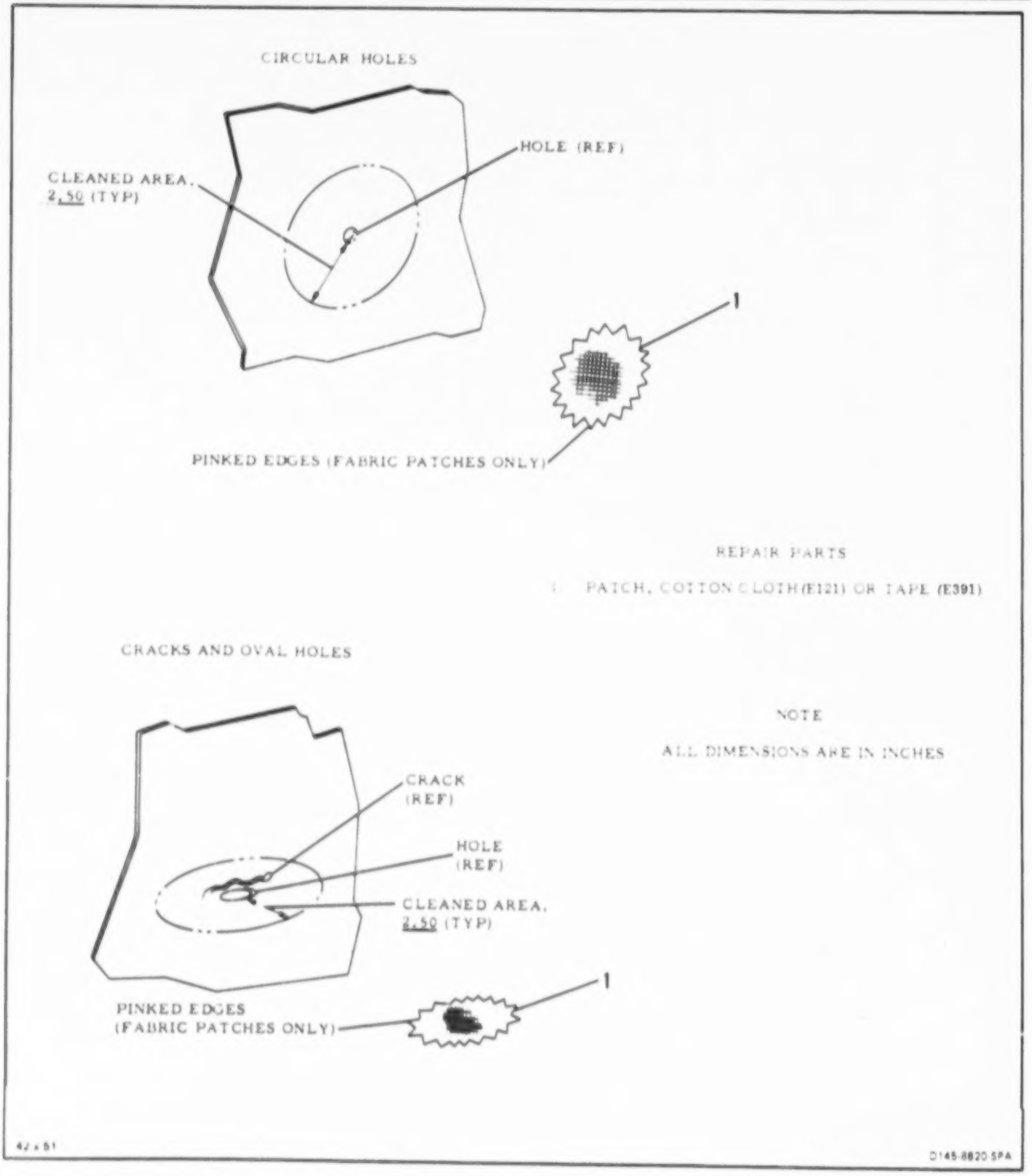
ORIGINAL THICKNESS	REINFORCEMENT THICKNESS
0.012	0.016
0.016	0.020
0.020	0.025
0.025	0.032
0.032	0.036
0.036	0.040
0.040	0.040

NOTES:
A. All dimensions are in inches.
B. These charts may be used to select a reinforcement when a specific repair figure, denoting a specific repair material, does not exist for a particular part.

Skin and Web Repairs (Sheet 6 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13


CIRCULAR HOLES
HOLE (REF)
CLEANED AREA, 2.50 (TYP)
1
PINKED EDGES (FABRIC PATCHES ONLY)
CRACKS AND OVAL HOLES
CRACK (REF)
HOLE (REF)
CLEANED AREA, 2.50 (TYP)
1
PINKED EDGES (FABRIC PATCHES ONLY)
D145-8820 SPA

REPAIR PARTS

1. PATCH, COTTON CLOTH (E121) OR TAPE (E391)

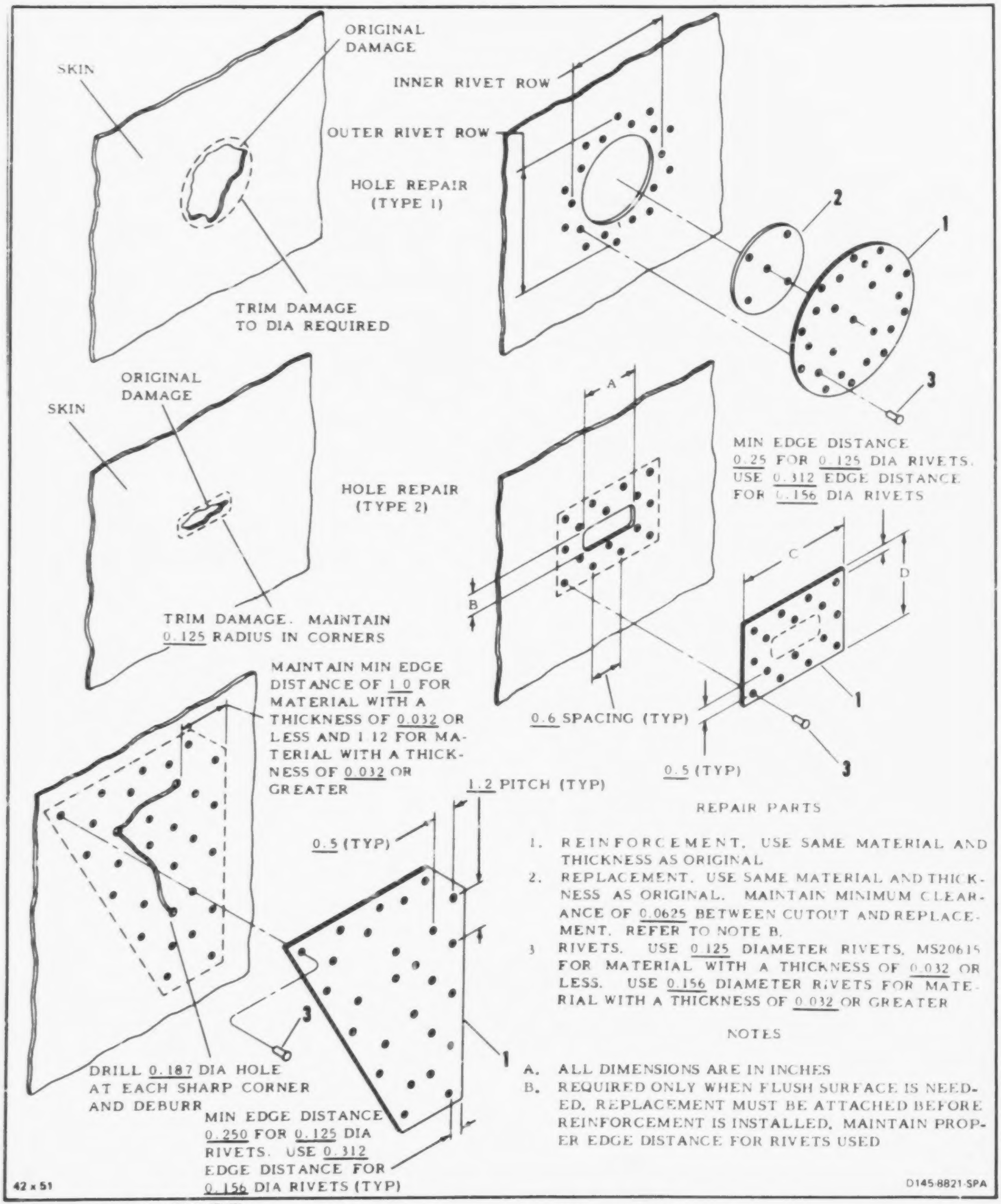
NOTE

ALL DIMENSIONS ARE IN INCHES

Skin and Web Repairs (Sheet 7 of 9)

GO TO NEXT PAGE

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13


SKIN
ORIGINAL DAMAGE
TRIM DAMAGE TO DIA REQUIRED
INNER RIVET ROW
OUTER RIVET ROW
HOLE REPAIR (TYPE 1)
2
1
3
SKIN
ORIGINAL DAMAGE
HOLE REPAIR (TYPE 2)
TRIM DAMAGE. MAINTAIN 0.125 RADIUS IN CORNERS
A
B
C
D
MIN EDGE DISTANCE 0.25 FOR 0.125 DIA RIVETS. USE 0.312 EDGE DISTANCE FOR 0.156 DIA RIVETS
0.6 SPACING (TYP)
0.5 (TYP)
1
3
MAINTAIN MIN EDGE DISTANCE OF 1.0 FOR MATERIAL WITH A THICKNESS OF 0.032 OR LESS AND 1.12 FOR MATERIAL WITH A THICKNESS OF 0.032 OR GREATER
1.2 PITCH (TYP)
0.5 (TYP)
3
1
DRILL 0.187 DIA HOLE AT EACH SHARP CORNER AND DEBURR
MIN EDGE DISTANCE 0.250 FOR 0.125 DIA RIVETS. USE 0.312 EDGE DISTANCE FOR 0.156 DIA RIVETS (TYP)
42 x 51
D145-8821-SPA

REPAIR PARTS

1. REINFORCEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL
2. REPLACEMENT. USE SAME MATERIAL AND THICKNESS AS ORIGINAL. MAINTAIN MINIMUM CLEARANCE OF 0.0625 BETWEEN CUTOUT AND REPLACEMENT. REFER TO NOTE B.
3. RIVETS. USE 0.125 DIAMETER RIVETS, MS20615 FOR MATERIAL WITH A THICKNESS OF 0.032 OR LESS. USE 0.156 DIAMETER RIVETS FOR MATERIAL WITH A THICKNESS OF 0.032 OR GREATER

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REQUIRED ONLY WHEN FLUSH SURFACE IS NEEDED. REPLACEMENT MUST BE ATTACHED BEFORE REINFORCEMENT IS INSTALLED. MAINTAIN PROPER EDGE DISTANCE FOR RIVETS USED

GO TO NEXT PAGE

Skin and Web Repairs (Sheet 8 of 9)

2-13 SKIN REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) (Continued) 2-13

CRITERIA FOR HOLE REPAIR (TYPE 1)

REPLACEMENT (2) DIAMETER	RIVET ROW DIAMETER*		PATCH (1) DIAMETER*
	INNER**	OUTER	
—	0.75 0.87	1.25 1.37	1.75 1.87
—	0.875 0.995	1.375 1.495	1.875 1.995
0.50	1.0 1.12	1.5 1.62	2.0 2.12
0.625	1.125 1.245	1.625 1.745	2.125 2.245
0.75	1.25 1.37	1.75 1.87	2.25 2.37
0.875	1.375 1.495	1.875 1.995	2.375 2.495
1.0	1.5 1.62	2.0 2.12	2.5 2.62
1.25	1.75 1.87	2.25 2.37	2.75 2.87
1.50	2.0 2.12	2.5 2.62	3.0 3.12
1.75	2.25 2.37	2.75 2.87	3.25 3.37

* Dimensions above diagonal line are for material thickness less than 0.040. Those below are for material thickness greater than 0.032.

** Maintain 0.6 pitch and stagger outer row between inner row.

NOTES: A. All dimensions are in inches.

B. Determine patch dimensions D and C for hole repair (Type 2) as follows.

1. D = B + 1.0, if material thickness is less than 0.04.
   D = B + 1.62, if material thickness is greater than 0.032.
2. C = A + 1.0, if material thickness is less than 0.04.
   C = A + 1.12, if material thickness is greater than 0.032.

Skin and Web Repairs (Sheet 9 of 9)

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-14 SKIN DAMAGE REQUIRING REPLACEMENT (GENERAL INFORMATION) (AVIM) 2-14

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-11
Task 2-324

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. This level of damage may be caused by extensive skin damage or numerous isolated damages. Replacement of a full panel is necessary (Task 2-11).
2. Sandwich-honey comb-panels shall be replaced with panels of the same type and installed in the same manner.
3. Skin panels are replaced along original boundary members.
4. Joints and seams are sealed the same as the original installation (Task 2-324).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-15 STRINGER MINOR DAMAGE (GENERAL INFORMATION) 2-15

INITIAL SETUP

Applicable Configurations:

Tools:
As Required

Materials:
Gloves (E186)
Zinc Chromate Primer (E291)

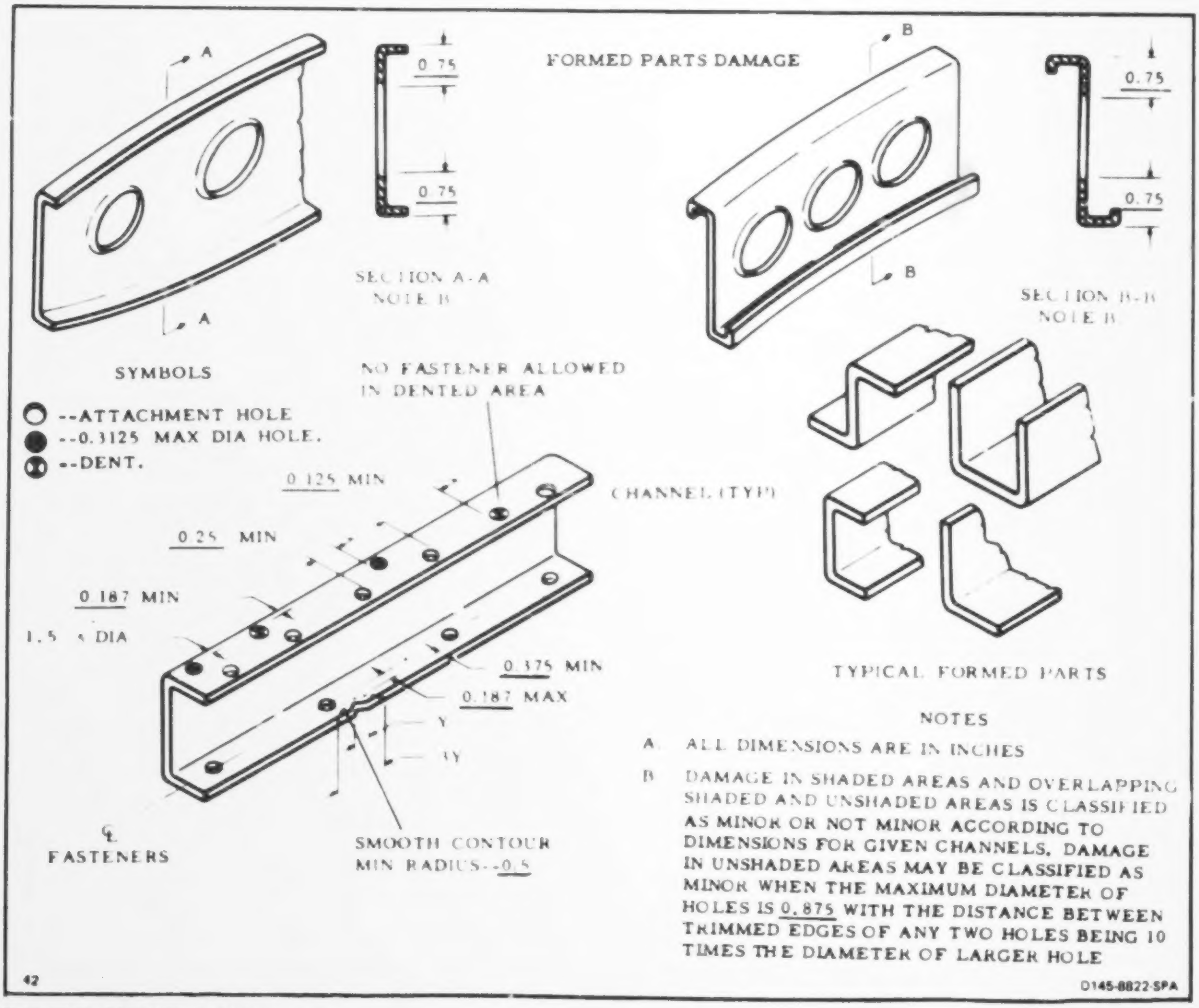
Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-16

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Minor damage is damage which can exist as is. Also damage that can be corrected by simple procedures like removing dents and small damaged areas, stop-drilling cracks, and plugging small holes is considered minor damage.
2. Examples of minor damage to formed and extruded stringers are as shown. (Task 2-16.)
3. Nicks, scratches, and small damaged areas can be removed by burnishing if within tolerance. After burnishing, the depth shall not be greater than 10 percent of thickness of thinnest leg of the extrusion.


A
A
0.75
0.75
SECTION A-A
NOTE B
FORMED PARTS DAMAGE
B
B
0.75
0.75
SECTION B-B
NOTE B
SYMBOLS
○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
⦿ --DENT.
NO FASTENER ALLOWED IN DENTED AREA
0.125 MIN
CHANNEL (TYP)
0.25 MIN
0.187 MIN
1.5 x DIA
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.5
TYPICAL FORMED PARTS
42
D145-8822-SPA

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS MINOR OR NOT MINOR ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS MINOR WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE

GO TO NEXT PAGE

2-15 STRINGER MINOR DAMAGE (GENERAL INFORMATION) (Continued) 2-15

CAUTION

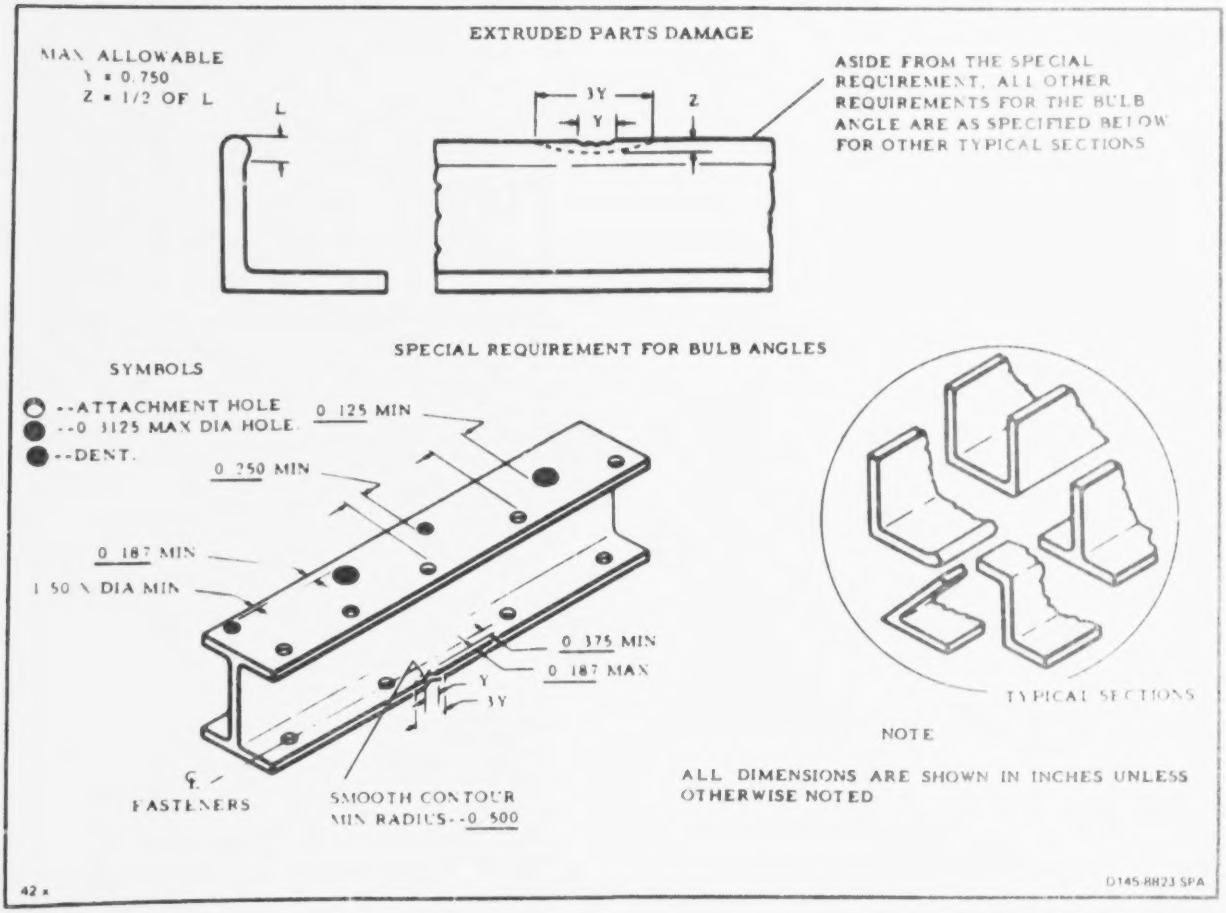
Do not use heat to remove a dent. Heat can alter properties of the original part.

4. Punctures, rough dents, cracks, and nicks and scratches, exceeding the maximum brunished depth are minor only if cleaned out as a round hole classified as minor.
5. Plug all minor damage holes 3/16-inch diameter or over with a tight fitting rivet or bolt.
6. Holes, plugged or open, and burnished areas, shall clear all radiuses, and shall clear all fasteners a minimum of 3/4-inch.
7. Smooth dents not exceeding the maximum burnished depth and a maximum of 1/2-inch diameter are minor.
8. To be classified as minor, two adjacent dents shall be separated by a 4-inch length of undamaged original extrusion. Measure the distance at the edges of the burnished areas.

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

9. Apply two coats of zinc chromate primer (E291) to burnished areas and edges of holes. Wear gloves (E186).


EXTRUDED PARTS DAMAGE
MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SPECIAL REQUIREMENT FOR BULB ANGLES
SYMBOLS
○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
● --DENT.
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.500
TYPICAL SECTIONS
42 x
D145-8823 SPA

NOTE

ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

END OF TASK

FOLLOW-ON MAINTENANCE:
As Required

2-16 STRINGERS (GENERAL INFORMATION) 2-16

INITIAL SETUP

Applicable Configuration:
All

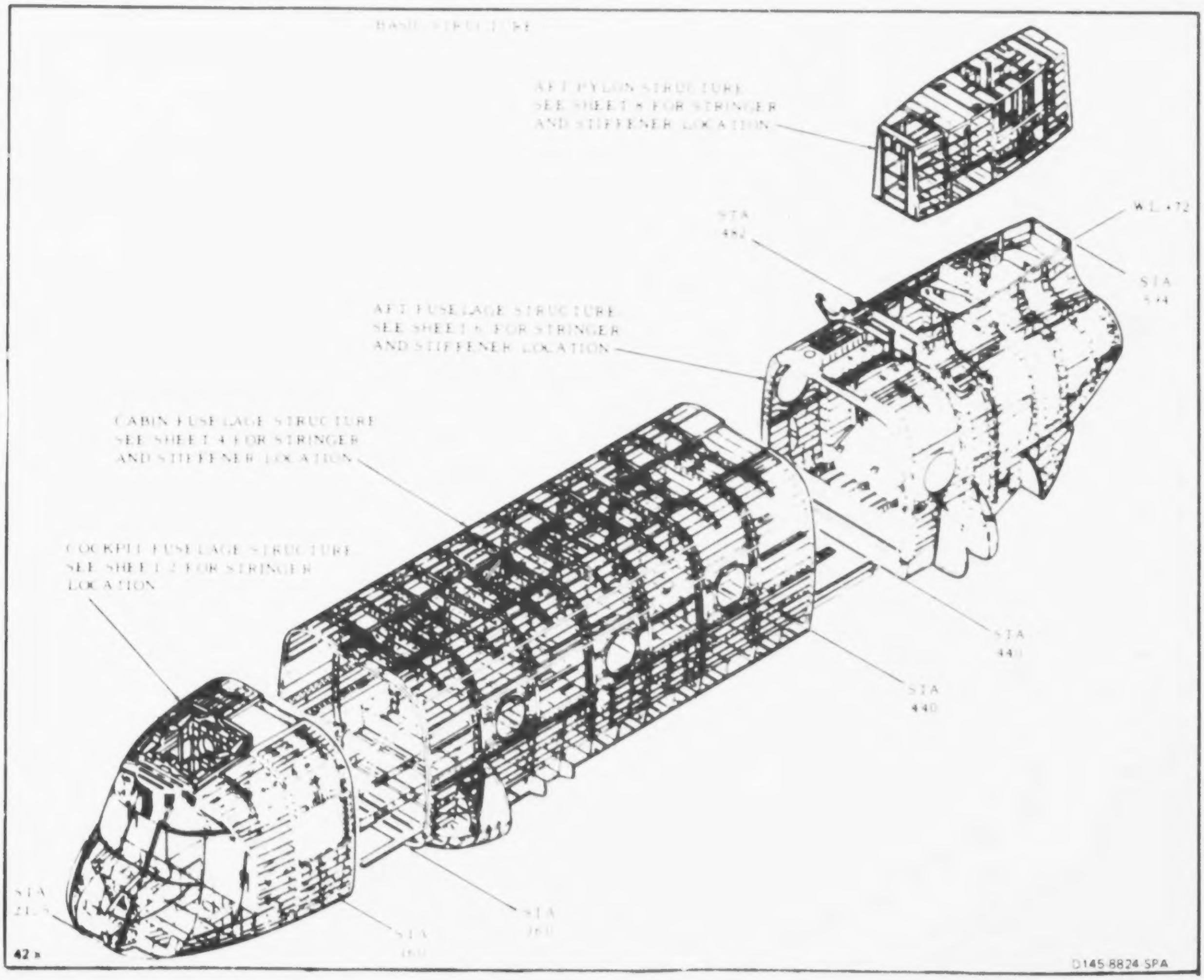
Tools:
None

Equipment Condition:
As Required

Materials:
None

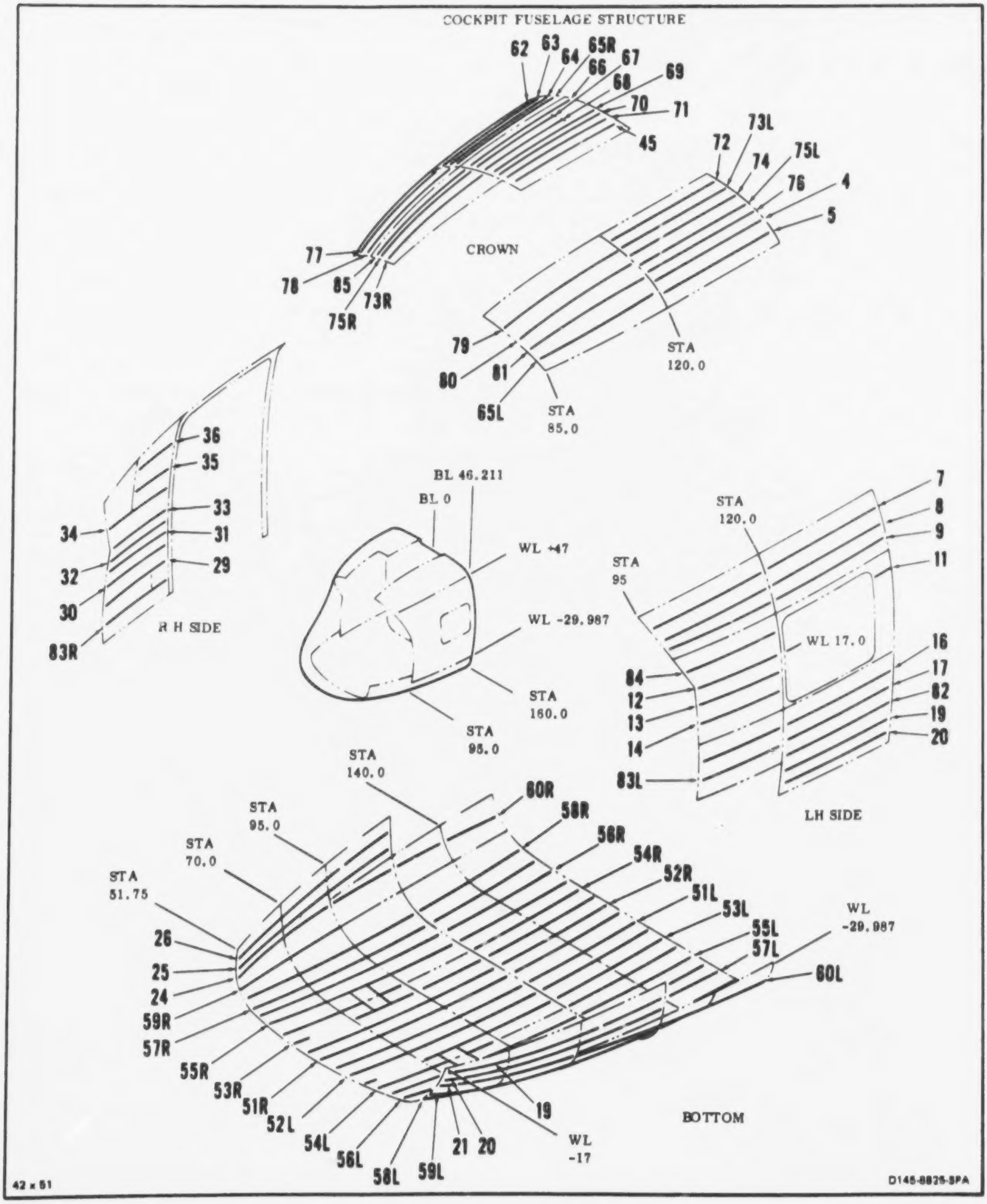
Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

1. Stringers are formed or extruded sections riveted longitudinally to the side, bottom, and crown panels of the structure
2. Damage to stringers shall be classified as minor, reparable, or requiring replacement


BASIC STRUCTURE
AFT PYLON STRUCTURE SEE SHEET 8 FOR STRINGER AND STIFFENER LOCATION
STA 482
W.L. +72
STA 534
AFT FUSELAGE STRUCTURE SEE SHEET 6 FOR STRINGER AND STIFFENER LOCATION
CABIN FUSELAGE STRUCTURE SEE SHEET 4 FOR STRINGER AND STIFFENER LOCATION
COCKPIT FUSELAGE STRUCTURE SEE SHEET 2 FOR STRINGER LOCATION
STA 440
STA 440
STA 21.5
STA 160
STA 160
42
D145-8824 SPA

GO TO NEXT PAGE

2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16


COCKPIT FUSELAGE STRUCTURE
62
63
64
65R
66
67
68
69
70
71
45
72
73L
74
75L
76
4
5
77
78
85
73R
75R
CROWN
79
80
81
65L
STA 85.0
STA 120.0
36
35
33
34
31
32
29
30
83R
R H SIDE
BL 46.211
BL 0
WL +47
WL -29.987
STA 160.0
STA 95.0
STA 120.0
STA 95
7
8
9
11
WL 17.0
16
17
82
19
20
84
12
13
14
83L
LH SIDE
STA 140.0
STA 95.0
STA 70.0
STA 51.75
60R
58R
56R
54R
52R
51L
53L
55L
57L
WL -29.987
60L
26
25
24
59R
57R
55R
53R
51R
52L
54L
56L
58L
59L
21
20
19
WL -17
BOTTOM
42 x 51
D145-8825-3PA

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — COCKPIT FUSELAGE STRUCTURE

STRINGER NO.	LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
4	37		120 THRU 160	114S1503-21	VS70503-2	7075-T6	0 040	7075-T6
5	42 08		120 THRU 160	114S1502-23	VS70503-2	7075-T6	0 040	7075-T6
7		+42 7	95 THRU 120	114S1501-45	VS70503-3	7075-T6	0 050	7075-T6
		+42 7	120 THRU 160	114S1501-51	VS70503-3	7075-T6	0 050	7075-T6
8		+38	95 THRU 120	114S1501-43	VS70503-2	7075-T6	0 040	7075-T6
		+38	120 THRU 160	114S1501-49	VS70503-3	7075-T6	0 050	7075-T6
9		+33 54	95 THRU 120	114S1501-41	VS70503-2	7075-T6	0 040	7075-T6
		+33 54	120 THRU 160	114S1501-47	VS70503-3	7075-T6	0 050	7075-T6
11		+23 2	154 5 THRU 160	114S1501-33	VS70503-1	7075-T6	0 032	7075-T6
12		+17 04	95 THRU 120	114S1501-37	VS70503-3	7075-T6	0 050	7075-T6
13		+11 6	95 THRU 120	114S1501-35	VS70503-3	7075-T6	0 050	7075-T6
14		+ 5 8	95 THRU 120	114S1501-31	VS70503-3	7075-T6	0 050	7075-T6
16		- 5 33	95 THRU 120	114S1501-29	VS70503-3	7075-T6	0 050	7075-T6
		- 5 33	120 THRU 160	114S1501-25	VS70503-3	7075-T6	0 050	7075-T6
17		-10 67	120 THRU 160	114S1501-23	VS70503-3	7075-T6	0 050	7075-T6
19		-19 5	51 75 THRU 100 78	114S1504-15	VS70503-2	7075-T6	0 040	7075-T6
		-20 67	100 78 THRU 120	114S1504-93	VS70503-2	7075-T6	0 040	7075-T6
		-20 67	120 THRU 169	114S1501-19	VS70503-2	7075-T6	0 040	7075-T6
20		-24	51 75 THRU 120	114S1504-17	VS70503-2	7075-T6	0 040	7075-T6
		-25 34	120 THRU 160	114S1501-17	VS70503-3	7075-T6	0 050	7075-T6
21		-28	51 75 THRU 95	114S1504-21	VS70503-2	7075-T6	0 040	7075-T6
24		-28	51 75 THRU 95	114S1504-22	VS70503-2	7075-T6	0 040	7075-T6
25		-24	51 75 THRU 120	114S1504-18	VS70503-2	7075-T6	0 040	7075-T6
26		-19 5	51 75 THRU 100 78	114S1504-16	VS70503-2	7075-T6	0 040	7075-T6
		-20 67	100 78 THRU 120	114S1504-94	VS70503-2	7075-T6	0 040	7075-T6
29		- 5 33	95 THRU 120	114S1502-31	VS70503-3	7075-T6	0 050	7075-T6
30		0	95 THRU 120	114S1502-45	VS70503-3	7075-T6	0 050	7075-T6
31		- 5 80	95 THRU 120	114S1502-43	VS70503-3	7075-T6	0 050	7075-T6
32		+11 6	95 THRU 120	114S1502-41	VS70503-3	7075-T6	0 050	7075-T6
33		+17 04	95 THRU 120	114S1502-23	VS70503-3	7075-T6	0 050	7075-T6
34		+23 50	95 THRU 120	114S1502-21	VS70503-3	7075-T6	0 050	7075-T6
35		+28	105 75 THRU 120	114S1502-19	VS70503-3	7075-T6	0 050	7075-T6
36		+32	105 75 THRU 120	114S1502-17	VS70503-3	7075-T6	0 050	7075-T6
45R	15 25		120 THRU 160	114S1503-29	VS70503-2	7075-T6	0 040	7075-T6
51R	2 75		48 THRU 120	114S1504-59	VS70503-2	7075-T6	0 040	7075-T6
			120 THRU 160	114S1504-35	VS70503-1	7075-T6	0 032	7075-T6
51L	2 75		48 THRU 120	114S1504-57	VS70503-2	7075-T6	0 040	7075-T6
			120 THRU 160	114S1504-33	VS70503-1	7075-T6	0 032	7075-T6
52R	8		48 THRU 120	114S1504-56	VS70503-1	7075-T6	0 032	7075-T6
			120 THRU 160	114S1504-32	VS70503-1	7075-T6	0 032	7075-T6
52L	8		48 THRU 120	114S1504-55	VS70503-1	7075-T6	0 032	7075-T6
			120 THRU 160	114S1504-31	VS70503-1	7075-T6	0 032	7075-T6
53R	13		48 THRU 54	114S1504-62	VS70503-1	7075-T6	0 032	7075-T6
			70 62 THRU 120	114S1504-51	VS70503-1	7075-T6	0 032	7075-T6
			120 THRU 160	114S1504-32	VS70503-1	7075-T6	0 032	7075-T6
53L	13		48 THRU 54	114S1504-61	VS70503-1	7075-T6	0 032	7075-T6
			70 62 THRU 95	114S1504-49	VS70503-1	7075-T6	0 032	7075-T6
			95 THRU 120	114S1504-53	VS70503-1	7075-T6	0 032	7075-T6
			120 THRU 160	114S1504-31	VS70503-1	7075-T6	0 032	7075-T6
54R	17 8		48 THRU 95	114S1504-63	VS70503-1	7075-T6	0 032	7075-T6
	18 75		120 THRU 160	114S1504-32	VS70503-1	7075-T6	0 032	7075-T6
54L	17 8		48 THRU 95	114S1504-47	VS70503-1	7075-T6	0 032	7075-T6
	18 75		120 THRU 160	114S1504-31	VS70503-1	7075-T6	0 032	7075-T6
55R	22 22		48 THRU 120	114S1504-65	VS70503-1	7075-T6	0 032	7075-T6
	23 38		120 THRU 160	114S1504-30	VS70503-1	7075-T6	0 032	7075-T6
55L	22 22		48 THRU 120	114S1504-45	VS70503-1	7075-T6	0 032	7075-T6
	23 38		120 THRU 160	114S1504-29	VS70503-1	7075-T6	0 032	7075-T6
56R	26 31		48 THRU 120	114S1504-44	VS70503-1	7075-T6	0 032	7075-T6
	28 75		120 THRU 160	114S1504-28	VS70503-1	7075-T6	0 032	7075-T6

NOTES: A All dimensions are in inches

GO TO NEXT PAGE

2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — CABIN FUSELAGE STRUCTURE

STRINGER NO	LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
56L	26.31		48 THRU 120	114S1504-43	VS70503-1	7075-T6	0.032	7075-T6
	28.75		120 THRU 160	114S1504-27	VS70503-1	7075-T6	0.032	7075-T6
57R	29.65		48 THRU 120	114S1504-98	ALCOA 9802	7075-T6	0.050	4130
	34.38		120 THRU 160	114S1504-26	VS70503-1	7075-T6	0.032	7075-T6
57L	29.65		48 THRU 120	114S1504-41	VS70503-2	7075-T6	0.040	7075-T6
	34.38		120 THRU 160	114S1504-25	VS70503-1	7075-T6	0.032	7075-T6
58R	31.9		48 THRU 120	114S1504-40	VS70503-3	7075-T6	0.050	7075-T6
	40.19		120 THRU 160	114S1504-24	VS70503-1	7075-T6	0.032	7075-T6
58L	31.9		48 THRU 120	114S1504-39	VS70503-3	7075-T6	0.050	7075-T6
	40.19		120 THRU 160	114S1504-23	VS70503-1	7075-T6	0.032	7075-T6
59R	33.67		48 THRU 95	114S1504-38	VS70503-3	7075-T6	0.050	7075-T6
59L	33.67		48 THRU 95	114S1504-119	VS70503-3	7075-T6	0.050	7075-T6
60R	46	33	95 THRU 120	114S1504-73	VS70503-1	7075-T6	0.032	7075-T6
	48	34.5	120 THRU 140	114S1504-67	AND10135-1002	7075-T6	0.063	4130
	50.04	35	140 THRU 160	114S1504-69	AND10135-1002	7075-T6	0.063	4130
60L	46	33	95 THRU 120	114S1504-71	VS70503-1	7075-T6	0.032	7075-T6
	50.04	35	120 THRU 160	114S1504-19	VS70503-1	7075-T6	0.032	7075-T6
62	50.53		120 THRU 160	114S1503-53	HARVEY 17716	7075-T6	0.080	4130
63	47.02		120 THRU 160	114S1503-51	HARVEY 17716	7075-T6	0.080	4130
64	44.28		120 THRU 160	114S1503-49	HARVEY 17716	7075-T6	0.080	4130
65R	40.88		120 THRU 160	114S1503-47	HARVEY 17716	7075-T6	0.080	4130
65L	40		85 THRU 120	114S1503-27	VS70503-2	7075-T6	0.040	7075-T6
66	31.98		120 THRU 160	114S1503-41	VS70503-1	7075-T6	0.032	7075-T6
67	29.02		120 THRU 150	114S1503-39	VS70503-1	7075-T6	0.032	7075-T6
68	26.03		120 THRU 150	114S1503-37	VS70503-1	7075-T6	0.032	7075-T6
69	23.03		120 THRU 160	114S1503-35	VS70503-1	7075-T6	0.032	7075-T6
70	20.5		120 THRU 160	114S1503-33	VS70503-1	7075-T6	0.032	7075-T6
71	18.09		120 THRU 160	114S1503-31	AN10133-1002	7075-T6	0.100	4130
72	20.5		120 THRU 160	114S1503-11	VS70503-2	7075-T6	0.040	7075-T6
73	24		85 THRU 120	114S1503-43	VS70503-3	7075-T6	0.050	7075-T6
73	24.39		120 THRU 160	114S1503-13	VS70503-2	7075-T6	0.040	7075-T6
74	27.57		120 THRU 160	114S1503-15	VS70503-1	7075-T6	0.032	7075-T6
75	27		85 THRU 120	114S1503-45	VS70503-3	7075-T6	0.050	7075-T6
75	30.77		120 THRU 160	114S1503-17	VS70503-1	7075-T6	0.032	7075-T6
76	33.9		120 THRU 160	114S1503-19	VS70503-1	7075-T6	0.032	7075-T6
77	48		85 THRU 120	114S1503-55	VS70503-1	7075-T6	0.032	7075-T6
78	43		85 THRU 120	114S1503-57	VS70503-1	7075-T6	0.032	7075-T6
79	24		85 THRU 120	114S1503-59	VS70503-2	7075-T6	0.040	7075-T6
80	29		85 THRU 120	114S1503-61	VS70503-2	7075-T6	0.040	7075-T6
82		-15.67	120 THRU 160	114S1501-21	VS70503-2	7075-T6	0.040	7075-T6
83R		-11.17	95 THRU 120	114S1502-33	VS70503-3	7075-T6	0.050	7075-T6
83L		-11.17	95 THRU 120	114S1501-27	VS70503-3	7075-T6	0.050	7075-T6
84		+24.3	95 THRU 120	114S1501-67	VS70503-3	7075-T6	0.050	7075-T6
85	30		85 THRU 120	114S1503-69	VS70503-3	7075-T6	0.050	7075-T6

NOTES: A All dimensions are in inches

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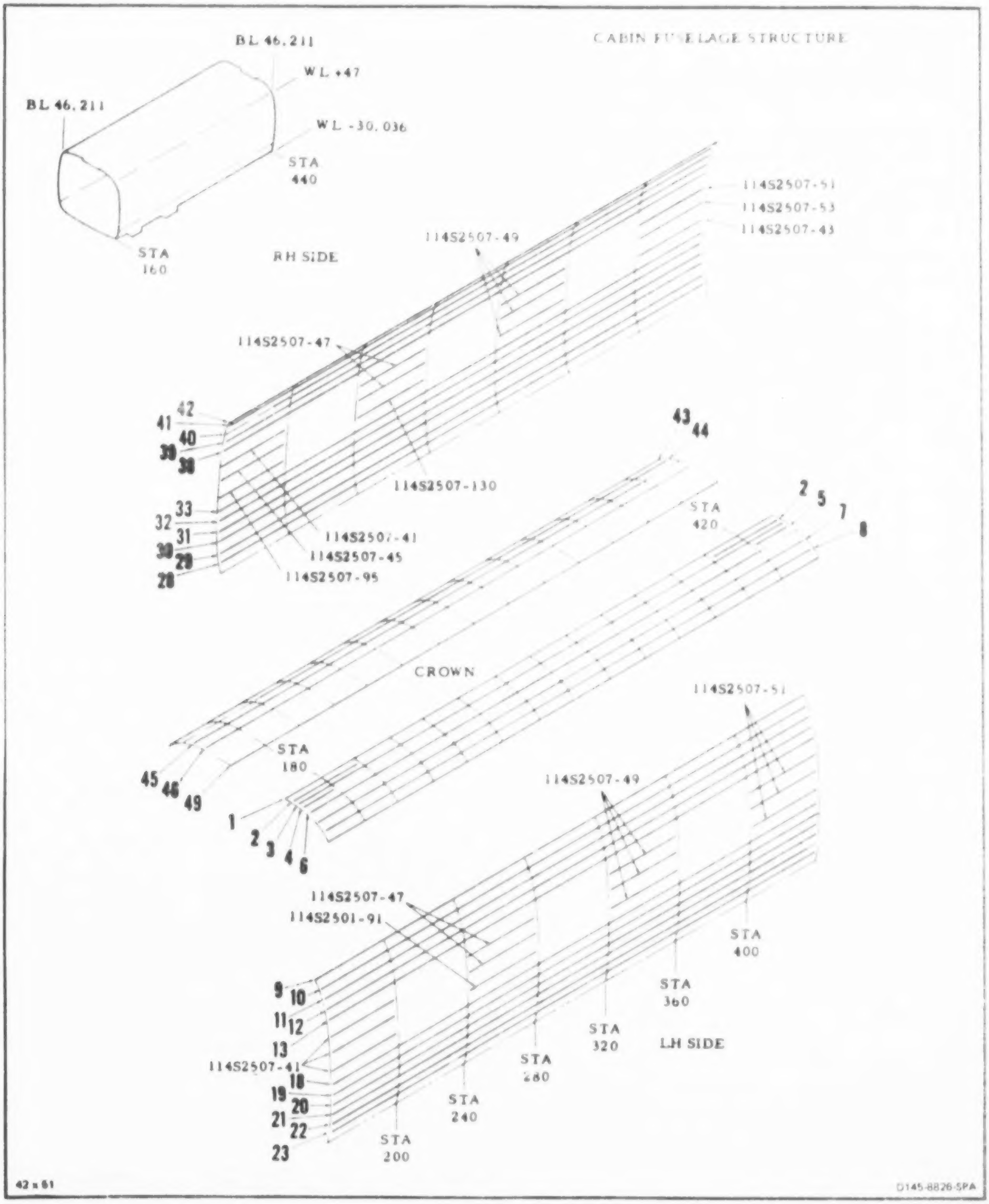
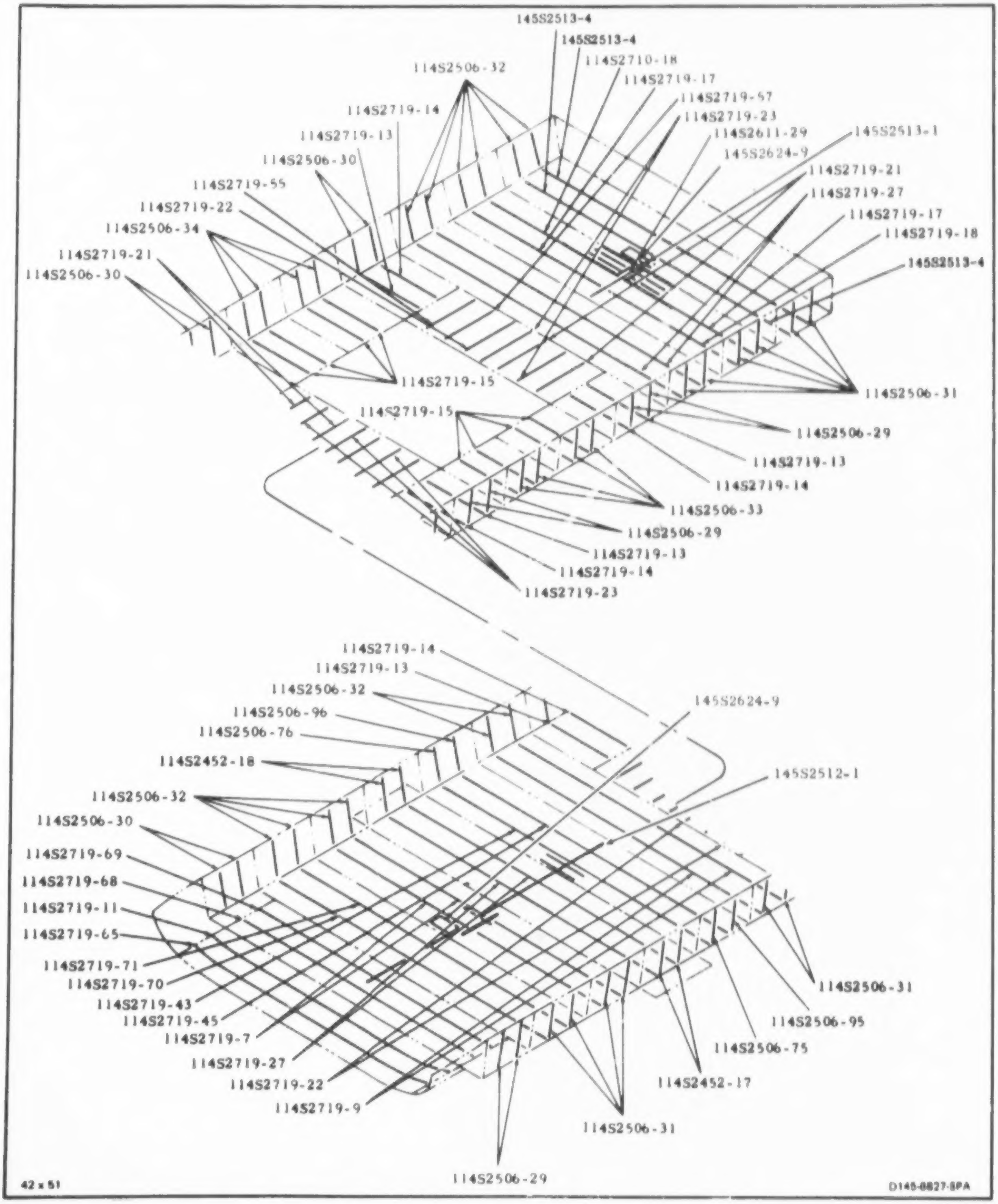
2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16


CABIN FUSELAGE STRUCTURE
BL 46.211
WL +47
BL 46.211
WL -30.036
STA 440
STA 160
RH SIDE
114S2507-51
114S2507-53
114S2507-43
114S2507-49
114S2507-47
42
41
40
39
38
114S2507-130
33
32
31
30
29
28
114S2507-41
114S2507-45
114S2507-95
43
44
2
5
7
8
STA 420
CROWN
STA 180
45
46
49
1
2
3
4
6
114S2507-51
114S2507-49
114S2507-47
114S2501-91
STA 400
9
10
11
12
13
114S2507-41
18
19
20
21
22
23
STA 360
STA 320
LH SIDE
STA 280
STA 240
STA 200
42 x 61
D145-8826-SPA

GO TO NEXT PAGE

2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16


145S2513-4
145S2513-4
114S2710-18
114S2506-32
114S2719-17
114S2719-57
114S2719-14
114S2719-23
114S2719-13
114S2611-29
145S2513-1
145S2624-9
114S2506-30
114S2719-55
114S2719-21
114S2719-27
114S2719-22
114S2719-17
114S2506-34
114S2719-18
114S2719-21
145S2513-4
114S2506-30
114S2719-15
114S2506-31
114S2719-15
114S2506-29
114S2719-13
114S2719-14
114S2506-33
114S2506-29
114S2719-13
114S2719-14
114S2719-23
114S2719-14
114S2719-13
114S2506-32
145S2624-9
114S2506-96
114S2506-76
114S2452-18
145S2512-1
114S2506-32
114S2506-30
114S2719-69
114S2719-68
114S2719-11
114S2719-65
114S2719-71
114S2719-70
114S2506-31
114S2719-43
114S2719-45
114S2506-95
114S2719-7
114S2506-75
114S2719-27
114S2452-17
114S2719-22
114S2719-9
114S2506-31
42 x 51
114S2506-29
D145-8827-SPA

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — CABIN FUSELAGE STRUCTURE

STRINGER NO (NOTE B)	LOCATION			PART NO	ORIGINAL MATERIAL	REPAIR MATERIAL
	BL	WL	STATION			
1	20			114S2503-253	VS905113 7075-T6	NOTE C
2	22 86		160 THRU 200	114S2503-57	ALCOA 83264 7075-T6	0 050 4130
			400 THRU 440	114S2503-59	ALCOA 83264 7075-T6	0 050 4130
3	25 72		160 THRU 440	114S2503-51	ALCOA 83264 7075-T6	0 050 4130
4	28 56		160 THRU 180	114S2503-55	ALCOA 83264 7075-T6	0 050 4130
5	28 03		420 THRU 440	114S2503-56	ALCOA 83264 7075-T6	0 050 4130
6	31 4		160 THRU 420	114S2503-247	ALCOA 83264 7075-T6	0 050 4130
7	37		160 THRU 440	114S2503-51	ALCOA 83264 7075-T6	0 050 4130
8	42 1		160 THRU 440	114S2503-51	ALCOA 83264 7075-T6	0 050 4130
9	46 21	+47	160 THRU 440	114S2001-27	AND10136-3001 7075-T6	0 125 4130
10		+42 7	160 THRU 440	114S2501-211	ALCOA 83264 7075-T6	0 050 4130
11		+38	160 THRU 440	114S2501-209	ALCOA 83264 7075-T6	0 050 4130
12		+33 54	160 THRU 440	114S2501-45	ALCOA 83264 7075-T6	0 050 4130
13		+29	160 THRU 440	114S2001-19	ALCOA 49225 7075-T6	0 063 4130
18		0	160 THRU 440	114S2152-31	VS90315 7075-T6	0 063 4130
19		-5 33	160 THRU 440	114S2501-171	ALCOA 83264 7075-T6	0 050 4130
20		-10 67	160 THRU 440	114S2501-169	ALCOA 83264 7075-T6	0 050 4130
21		-16	160 THRU 440	114S2501-167	ALCOA 22878 7075-T6	0 063 4130
22		-20 67	160 THRU 440	114S2501-165	ALCOA 83264 7075-T6	0 050 4130
23		-25 34	160 THRU 440	114S2501-161	ALCOA 83264 7075-T6	0 050 4130
28		-25 34	160 THRU 440	114S2501-163	ALCOA 83264 7075-T6	0 050 4130
29		-20 67	160 THRU 440	114S2501-177	ALCOA 83264 7075-T6	0 050 4130
30		-16	160 THRU 440	114S2501-175	ALCOA 22878 7075-T6	0 063 4130
31		-10	160 THRU 440	114S2501-173	ALCOA 83264 7075-T6	0 050 4130
32		-5 33	160 THRU 440	114S2501-173	ALCOA 83264 7075-T6	0 050 4130
33		0	160 THRU 440	114S2152-33	VS90315 7075-T6	0 063 4130
38		+29	160 THRU 440	114S2001-20	ALCOA 49225 7075-T6	0 063 4130
39		+33 54	160 THRU 440	114S2501-53	ALCOA 83264 7075-T6	0 050 4130
40		+38	190 THRU 440	114S2501-55	ALCOA 83264 7075-T6	0 050 4130
41		+42 7	160 THRU 192	114S2501-59	ALCOA 83264 7075-T6	0 050 4130
			200 THRU 429	114S2501-57	ALCOA 83264 7075-T6	0 050 4130
42	46 21	+47	160 THRU 440	114S2001-17	ALCOA 44132 7075-T6	0 100 4130
43	42 1		160 THRU 440	114S2503-67	ALCOA 28172 7075-T6	0 063 4130
44	37		200 THRU 440	114S2503-65	ALCOA 28172 7075-T6	0 063 4130
45	31 4		160 THRU 420	114S2503-248	ALCOA 28172 7075-T6	0 063 4130
46	25 72		160 THRU 440	114S2503-61	ALCOA 83264 7075-T6	0 050 4130
49	10 5		160 THRU 440	114S2503-254	VS90604 7075-T6	NOTE C
		+ 8 8	160 THRU 200	114S2507-41	ALCOA 22477 7075-T6	0 040 4130
—		+14 9	160 THRU 200	114S2507-41	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+21	160 THRU 200	114S2507-41	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+21	160 THRU 200	114S2507-41	ALCOA 22477 7075-T6	0 040 4130
—		+ 8 8	400 THRU 440	114S2507-43	ALCOA 23160 7075-T6	0 063 4130
—		+14 9	160 THRU 200	114S2507-45	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+14 9	240 THRU 280	114S2507-47	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+14 9	240 THRU 280	114S2507-47	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+21	240 THRU 280	114S2507-47	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+21	240 THRU 280	114S2507-47	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+ 8 8	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+ 8 8	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+14 9	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+14 9	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+21	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+21	320 THRU 360	114S2507-49	ALCOA 22477 7075-T6	0 040 4130
—		+ 8	400 THRU 440	114S2507-51	ALCOA 22477 7075-T6	0 040 4130
—		+14 9	400 THRU 440	114S2507-51	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+21	400 THRU 440	114S2507-51	ALCOA 22477 7075-T6	0 040 4130
—	(RH SIDE)	+21	400 THRU 440	114S2507-51	ALCOA 22477 7075-T6	0 040 4130
—		+14 9	400 THRU 440	114S2507-53	ALCOA 22477 7075-T6	0 040 4130
—	(LH SIDE)	+ 8 8	240 THRU 280	114S2507-91	ALCOA 59675 7075-T6	0 040 4130
—	(RH SIDE)	+ 8 8	240 THRU 280	114S2507-130	ALCOA 59675 7075-T6	0 040 4130
—		+ 8 8	160 THRU 200	114S2507-95	ALCOA 23160 7075-T6	0 063 4130

NOTES:
A All dimensions are in inches
B Unindexed stringers and all stiffeners are identified by part number
C Replace with a section corresponding to the original

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STIFFENERS — CABIN FUSELAGE STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
	-31 THRU -42	246.5	114S2452-17	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	253.5	114S2452-17	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	246.5	114S2452-18	AND10133-0601	7075-T6	0.063	4130
	-31 THRU -42	253.5	114S2452-18	AND10133-0601	7075-T6	0.063	4130
	-30 THRU -41	186.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	193	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	306.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	313	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-31 THRU -41	366.5	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	373	114S2506-29	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	186.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	193	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	306.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	313	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	366.5	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	373	114S2506-30	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	206.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	213	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	226.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	233	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	286.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	293	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	386.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	393	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	406.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	413	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	426.5	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	433	114S2506-31	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	206.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	213	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	226.6	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	233	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	286.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	293	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	386.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	393	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	406.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	413	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	426.5	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -41	433	114S2506-32	ALCOA 22477	7075-T6	0.040	4130
	-30 THRU -42	326.5	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	333	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	346.5	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	353	114S2506-33	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	326.5	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	333	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	346.5	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -42	353	114S2506-34	AND10134-1005	7075-T6	0.063	4130
	-30 THRU -40	266.5	114S2506-75	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	266.5	114S2506-76	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	271	114S2506-95	AND10134-1003	7075-T6	0.063	4130
	-30 THRU -40	271	114S2506-96	AND10134-1003	7075-T6	0.063	4130
0		400 THRU 420	114S2611-29	VS90316	7075-T6	0.125	4130
48R THRU 48L		226.5	114S2719-7	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		233.5	114S2719-7	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		285.7	114S2719-9	0.25	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		294.3	114S2719-9	0.25	7075-T6 CLAD	0.032	7075-T6
45R THRU 45L		166.5	114S2719-11	0.25	7075-T6 CLAD	0.032	7075-T6
28R THRU 48R		306.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28L THRU 48L		313.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		366.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		373.5	114S2719-13	ALCOA 83264	7075-T6	0.050	4130

NOTES:
- A All dimensions are in inches
- B Unindexed stringers and all stiffeners are identified by part number
- C Replace with a section corresponding to the original

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STIFFENERS — CABIN FUSELAGE STRUCTURE

LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
28L THRU 48L		306 5	114S2719-14	ALCOA 83264	7075-T6	0 050	4130
28R THRU 48R		313 5	114S2719-14	ALCOA 83264	7075-T6	0 050	4130
28L THRU 48L		366 5	114S2719-14	ALCOA 83264	7075-T6	0 050	4130
28R THRU 48R		373 5	114S2719-14	ALCOA 83264	7075-T6	0 050	4130
28R THRU 48R		326 3	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28L THRU 48L		326 3	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28R THRU 48R		332 9	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28L THRU 48L		332 9	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28R THRU 48R		346 6	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28L THRU 48L		346 6	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28R THRU 48R		352 9	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
28L THRU 48L		352 9	114S2719-15	ALCOA 55794	7075-T6	0 080	4130
0 THRU 48R		406 5	114S2719-17	0 32	7075-T6 CLAD	0 040	7075-T6
0 THRU 48L		413 5	114S2719-17	0 32	7075-T6 CLAD	0 040	7075-T6
0 THRU 48L		406 5	114S2719-18	0 32	7075-T6 CLAD	0 040	7075-T6
0 THRU 48R		413 5	114S2719-18	0 32	7075-T6 CLAD	0 040	7075-T6
7 2R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0 050	4130
20 8R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0 050	4130
7 2L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0 050	4130
20 8L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0 050	4130
7 2L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0 050	4130
20 8L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0 050	4130
7 2R		360 THRU 380	114S2719-22	ALCOA 83264	7075-T6	0 050	4130
13 7R		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0 125	4130
0		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0 125	4130
13 7L		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0 125	4130
0		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0 125	4130
13 7L		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0 125	4130
48R THRU 48L		246 5	114S2719-27	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		253 5	114S2719-27	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		386 5	114S2719-27	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		393 5	114S2719-27	0 025	7075-T6 CLAD	0 032	7075-T6
0 THRU 48R		426 5	145S2513-4	0 032	7075-T6 CLAD	0 040	7075-T6
0 THRU 48L		433 5	145S2513-4	0 032	7075-T6 CLAD	0 040	7075-T6
0 THRU 48L		426 5	145S2513-4	0 032	7075-T6 CLAD	0 040	7075-T6
0 THRU 48R		433 5	145S2513-4	0 032	7075-T6 CLAD	0 040	7075-T6
48R THRU 48L		266 3	114S2719-33	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		273 6	114S2719-33	0 025	7075-T6 CLAD	0 032	7075-T6
20 8R		360 THRU 380	114S2719-55	ALCOA 22991	7075-T6	0 063	7075-T6
13 7R		360 THRU 380	114S2719-57	AND10136-2006	7075-T6	0 125	4130
45R THRU 45L		173 5	114S2719-63	0 025	7075-T6 CLAD	0 032	7075-T6
45R THRU 45L		185 8	114S2719-68	0 025	7075-T6 CLAD	0 032	7075-T6
45R THRU 45L		193 1	114S2719-69	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		206 5	114S2719-70	0 025	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		213 5	114S2719-71	0 025	7075-T6 CLAD	0 032	7075-T6

NOTES: A All dimensions are in inches
B Unindexed stringers and all stiffeners are identified by part number
C Replace with a section corresponding to the original

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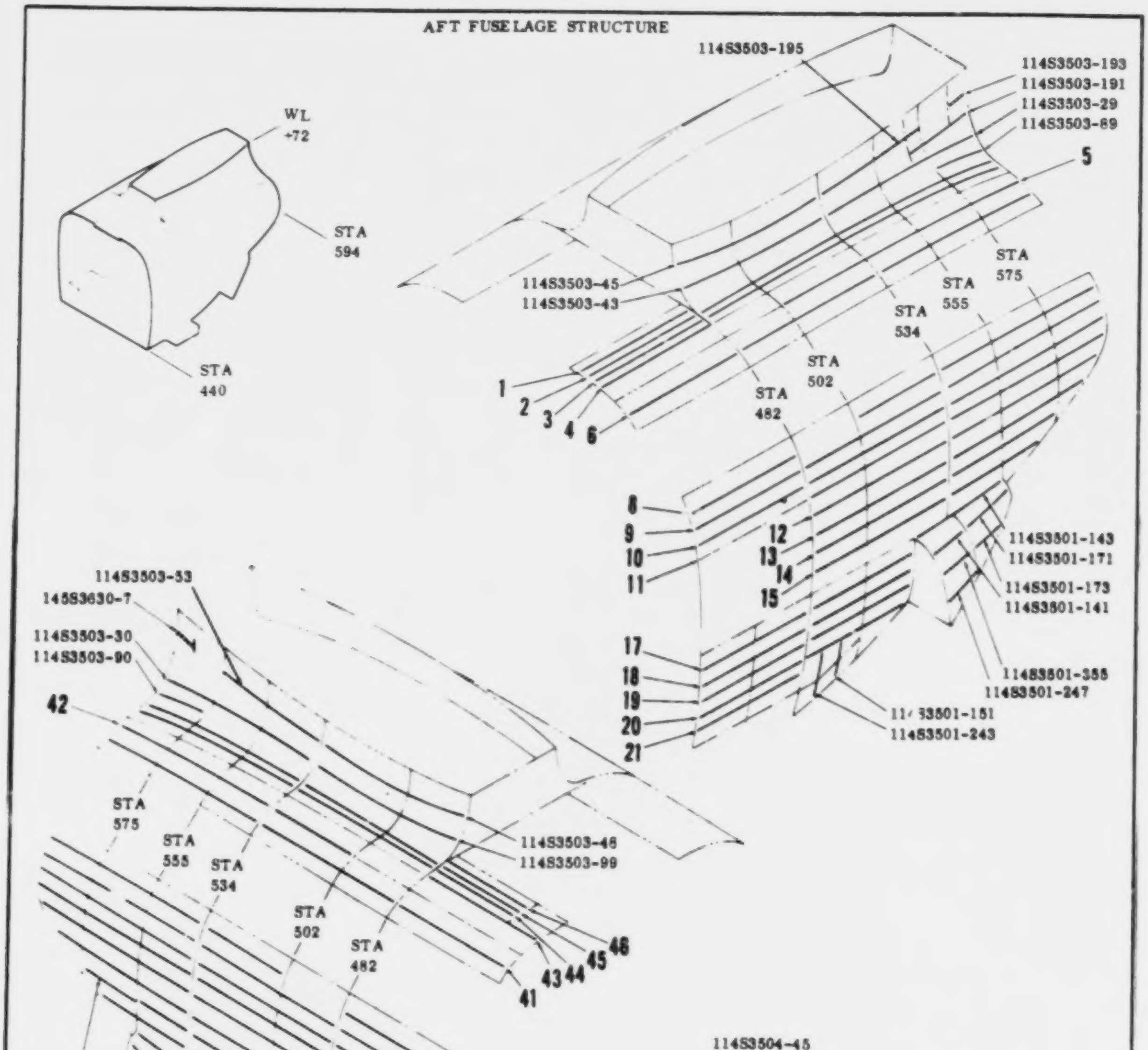
2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16


AFT FUSELAGE STRUCTURE
WL +72
STA 594
STA 440
114S3503-195
114S3503-193
114S3503-191
114S3503-29
114S3503-89
5
114S3503-45
114S3503-43
STA 575
STA 555
STA 534
STA 502
STA 482
1
2
3
4
6
8
9
10
11
12
13
14
15
17
18
19
20
21
114S3501-143
114S3501-171
114S3501-173
114S3501-141
114S3501-355
114S3501-247
114S3501-151
114S3501-243
114S3503-53
145S3630-7
114S3503-30
114S3503-90
42
STA 575
STA 555
STA 534
STA 502
STA 482
114S3503-46
114S3503-99
46
45
44
43
41
39
38
37
36
35
34
33
32
30
29
28
27
26
114S3501-121
114S3501-144
114S3501-172
114S3501-174
114S3501-142
114S3501-356
114S3501-248
114S3501-207
114S3501-209
114S3501-244
114S3501-152
114S3504-45
STA 482
114S3504-43
STA 440
114S3504-46
114S3504-43
114S3504-17 (12 PLACES)
114S2719-25
42 x 51
D145-8828-5FA

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — AFT FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
	BL	WL	STATION					
1	22 86		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0 063	4130
2	25 72		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0 063	4130
	25 72		482 THRU 534	114S3503-41	ALCOA 28172	7075-T6	0 063	4130
	25 72		534 THRU 594	114S3503-27	ALCOA 83264	7075-T6	0 050	4130
3	28 53		440 THRU 482	114S3503-49	ALCOA 28172	7075-T6	0 063	4130
	28 53		482 THRU 534	114S3503-39	ALCOA 28172	7075-T6	0 063	4130
	28 53		534 THRU 594	114S3503-25	ALCOA 83264	7075-T6	0 050	4130
4	31 4		440 THRU 482	114S3354-303	AND10136-1406	7075-T6	0 100	4130
5	37		502 THRU 534	114S3503-35	ALCOA 28172	7075-T6	0 063	4130
	37		534 THRU 594	114S3503-23	ALCOA 83264	7075-T6	0 050	4130
6	42 1		440 THRU 482	114S3503-47	ALCOA 28172	7075-T6	0 063	4130
	42 1		482 THRU 534	114S3503-33	ALCOA 83264	7075-T6	0 050	4130
	42 1		534 THRU 594	114S3503-21	ALCOA 83264	7075-T6	0 050	4130
8				114S3503-389	ALCOA 83264	7075-T6	0 050	4130
		+42 7	502 THRU 534	114S3501-113	ALCOA 83264	7075-T6	0 050	4130
		+42 7	534 THRU 594	114S3501-135	ALCOA 83264	7075-T6	0 050	4130
9			440 THRU 482	114S3501-388	AND10134-1202	7075-T6	0 100	4130
		+38	482 THRU 534	114S3501-111	ALCOA 83264	7075-T6	0 050	4130
		+38	534 THRU 594	114S3501-133	ALCOA 83264	7075-T6	0 050	4130
10		+33 54	440 THRU 482	114S3501-91	ALCOA 83264	7075-T6	0 050	4130
		+33 54	482 THRU 534	114S3501-107	ALCOA 83264	7075-T6	0 050	4130
		+33 54	534 THRU 594	114S3501-131	ALCOA 83264	7075-T6	0 050	4130
11		+29	482 THRU 534	114S3501-225	ALCOA 83264	7075-T6	0 050	4130
		+29	534 THRU 594	114S3501-129	ALCOA 83264	7075-T6	0 050	4130
12		+23 2	482 THRU 534	114S3501-107	ALCOA 83264	7075-T6	0 050	4130
		+23 2	534 THRU 594	114S3501-127	ALCOA 83264	7075-T6	0 050	4130
13		+17 04		114S3501-372	ALCOA 83264	7075-T6	0 050	4130
		+17 04	534 THRU 592	114S3501-123	ALCOA 83264	7075-T6	0 050	4130
14		+11 6	482 THRU 534	114S3501-371	ALCOA 83264	7075-T6	0 050	4130
		+11 6	534 THRU 583	114S3501-117	ALCOA 83264	7075-T6	0 050	4130
15		+5 8	482 THRU 534	114S3501-391	ALCOA 83264	7075-T6	0 050	4130
		+5 8	534 THRU 537 5	114S3501-115	ALCOA 83264	7075-T6	0 050	4130
17		-5 33	440 THRU 478	114S3501-89	ALCOA 83264	7075-T6	0 050	4130
		-5 33	482 THRU 520	114S3501-153	ALCOA 83264	7075-T6	0 050	4130
18		-10 67	440 THRU 478	114S3501-89	ALCOA 83264	7075-T6	0 050	4130
		-10 67	482 THRU 520	114S3501-153	ALCOA 83264	7075-T6	0 050	4130
19		-16	440 THRU 482	114S3501-367	ALCOA 83264	7075-T6	0 050	4130
		-16	482 THRU 520	114S3501-101	ALCOA 83264	7075-T6	0 050	4130
20		-20 67	440 THRU 482	114S3501-367	ALCOA 83264	7075-T6	0 050	4130
		-20 67	482 THRU 520	114S3501-99	ALCOA 83264	7075-T6	0 050	4130
21		-25 34	440 THRU 482	114S3501-85	ALCOA 83264	7075-T6	0 050	4130
26		-25 34	440 THRU 482	114S3501-86	ALCOA 83264	7075-T6	0 050	4130
27		-20 67	440 THRU 482	114S3501-88	ALCOA 83264	7075-T6	0 050	4130
		-20 67	482 THRU 520	114S3501-100	ALCOA 83264	7075-T6	0 050	4130
28		-16	440 THRU 482	114S3501-88	ALCOA 83264	7075-T6	0 050	4130
		-16	482 THRU 520	114S3501-102	ALCOA 83264	7075-T6	0 050	4130
29		-10 67	440 THRU 482	114S3501-90	ALCOA 83264	7075-T6	0 050	4130
		-10 67	482 THRU 520	114S3501-154	ALCOA 83264	7075-T6	0 050	4130
30		-5 33	440 THRU 482	114S3501-90	ALCOA 83264	7075-T6	0 050	4130
		-5 33	482 THRU 520	114S3501-154	ALCOA 83264	7075-T6	0 050	4130
32		+5 8	482 THRU 534	114S3501-105	ALCOA 83264	7075-T6	0 050	4130
		+5 8	534 THRU 573 5	114S3501-116	ALCOA 83264	7075-T6	0 050	4130
33		+11 6	482 THRU 534	114S3501-105	ALCOA 83264	7075-T6	0 050	4130
		+11 6	534 THRU 555 8	114S3501-119	ALCOA 83264	7075-T6	0 050	4130
34		+17 04	482 THRU 534	114S3501-108	ALCOA 83264	7075-T6	0 050	4130
		+17 04	534 THRU 592	114S3501-125	ALCOA 83264	7075-T6	0 050	4130
35		+23 2	482 THRU 534	114S3501-108	ALCOA 83264	7075-T6	0 050	4130
		+23 2	534 THRU 594	114S3501-81	ALCOA 83264	7075-T6	0 050	4130

NOTES: A All dimensions are in inches
B Unindexed stringers and all stiffeners are identified by part number

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — AFT FUSELAGE STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO.	ORIGINAL MATERIAL	REPAIR MATERIAL
	BL	WL	STATION			
36		+29	482 THRU 534	114S3501-226	AND10138-1005 7075-T6	0 080 4130
		+29	534 THRU 594	114S3501-130	ALCOA 83264 7075-T6	0 050 4130
37		+33 54	440 THRU 482	114S3501-92	ALCOA 83264 7075-T6	0 050 4130
		+33 54	482 THRU 534	114S3501-108	ALCOA 83264 7075-T6	0 050 4130
		+33 54	534 THRU 594	114S3501-132	ALCOA 83264 7075-T6	0 050 4130
38		+38	440 THRU 482	114S3501-228	AND10134-1202 7075-T6	0 100 4130
		+38	482 THRU 534	114S3501-112	ALCOA 83264 7075-T6	0 050 4130
		+38	534 THRU 561	114S3501-157	ALCOA 83264 7075-T6	0 050 4130
		+38	569 5 THRU 594	114S3501-175	ALCOA 83264 7075-T6	0 050 4130
39		+42 7	440 THRU 482	114S3501-96	ALCOA 83264 7075-T6	0 050 4130
		+42 7	502 THRU 534	114S3501-114	ALCOA 83264 7075-T6	0 050 4130
		+42 7	534 THRU 594	114S3501-136	ALCOA 83264 7075-T6	0 050 4130
41	42 1		440 THRU 482	114S3503-55	ALCOA 28172 7075-T6	0 063 4130
	42 1		482 THRU 534	114S3505-34	ALCOA 83264 7075-T6	0 050 4130
	42 1		534 THRU 594	114S3503-22	ALCOA 83264 7075-T6	0 050 4130
42	37		502 THRU 534	114S3503-36	ALCOA 28172 7075-T6	0 063 4130
	37		534 THRU 594	114S3503-24	ALCOA 83264 7075-T6	0 050 4130
43	31 4		440 THRU 482	114S3354-288	AND10136-1406 7075-T6	0 100 4130
44	28 52		450 THRU 482	114S3503-51	ALCOA 28172 7075-T6	0 063 4130
			482 THRU 534	114S3503-40	ALCOA 28172 7075-T6	0 063 4130
			534 THRU 594	114S3503-26	ALCOA 83264 7075-T6	0 050 4130
45	25 72		450 THRU 482	114S3503-51	ALCOA 28172 7075-T6	0 063 4130
	25 72		482 THRU 534	114S3503-42	ALCOA 28172 7075-T6	0 063 4130
	25 72		534 THRU 594	114S3503-28	ALCOA 83264 7075-T6	0 050 4130
46	22 86		450 THRU 482	114S3503-51	ALCOA 28172 7075-T6	0 063 4130
—		+9 85	555 8 THRU 580 4	114S3501-121	ALCOA 83264 7075-T6	0 050 4130
—		-2 38	520 THRU 534	114S3501-141	ALCOA 83264 7075-T6	0 050 4130
—		-2 38	520 THRU 534	114S3501-142	ALCOA 83264 7075-T6	0 050 4130
—		0	520 THRU 555	114S3501-143	0 051 2024-T4 CLAD	0 063 2024-T4 CLAD
—		0	520 THRU 555	114S350[illegible]-144	0 051 2024-T4 CLAD	0 063 2024-T4 CLAD
—		-2 38	534 THRU 555	114S3501-171	ALCOA 83264 7075-T6	0 050 4130
—		-2 38	534 THRU 555	114S3501-172	ALCOA 83264 7075-T6	0 050 4130
—		-7	534 THRU 546	114S3501-173	ALCOA 83264 7075-T6	0 050 4130
—		-7	534 THRU 546	114S3501-174	ALCOA 83264 7075-T6	0 050 4130
—		-7	520 THRU 534	114S3501-355	ALCOA 83264 7075-T6	0 050 4130
—		-7	520 THRU 534	114S3501-356	ALCOA 83264 7075-T6	0 050 4130
—		+59	534 THRU 594	114S3503-29	ALCOA 83264 7075-T6	0 050 4130
—		+59	534 THRU 594	114S3503-30	ALCOA 83264 7075-T6	0 050 4130
—		+60	482 THRU 534	114S3503-43	ALCOA 60806 7075-T6	0 080 4130
—		+66	482 THRU 534	114S3503-45	ALCOA 83264 7075-T6	0 050 4130
—		+66	482 THRU 534	114S3503-46	ALCOA 83264 7075-T6	0 050 4130
—		+66	534 THRU 594	114S3503-53	ALCOA 83264 7075-T6	0 050 4130
—		+54	575 5 THRU 594	114S3503-89	ALCOA 83264 7075-T6	0 050 4130
—		+54	575 5 THRU 594	114S3503-90	ALCOA 83264 7075-T6	0 050 4130
—		+62	575 5 THRU 594	114S3503-91	ALCOA 83264 7075-T6	0 050 4130
—		+60	482 THRU 534	114S3503-99	ALCOA 83264 7075-T6	0 050 4130
—		+62	569 5 THRU 594	114S3503-191	ALCOA 83264 7075-T6	0 050 4130
—		+66	534 THRU 575	114S3503-193	ALCOA 83264 7075-T6	0 050 4130
—		+66	586 THRU 594	114S3503-195	ALCOA 83264 7075-T6	0 050 4130
—		+66	586 THRU 594	145S3630-7	ALCOA 83264 2024-T4	0 050 4130

NOTES A All dimensions are in inches
B Unindexed stringers and all stiffeners are identified by part number

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STIFFENERS — AFT FUSELAGE STRUCTURE

LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
48R THRU 48L		446 6	114S2719-25	0 040	7075-T6 CLAD	0 050	7075-T6
48R THRU 48L		453 6	114S2719-25	0 040	7075-T6 CLAD	0 050	7075-T6
	-20 THRU -33	496 3	114S3501-151	ALCOA 67580	7075-T6	0 050	4130
	-20 THRU -33	496 3	114S3501-152	ALCOA 67580	7075-T6	0 050	4130
	+12	482 THRU 502	114S3501-207	ALCOA 83264	7075-T6	0 050	4130
	+ 4 5	482 THRU 502	114S3501-209	0 063	7075-T6 CLAD	0 071	7075-T6
	-20 THRU -36	489 2	114S3501-243	AND10134-1401	7075-T6	0 100	4130
	-20 THRU -36	489 2	114S3501-244	AND10134-1401	7075-T6	0 100	4130
	+15	520 THRU 534	114S3501-247	0 063	7075-T6 CLAD	0 071	7075-T6
	+15	520 THRU 534	114S3501-248	0 063	7075-T6 CLAD	0 071	7075-T6
5R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
10R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
15R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
26R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
32R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
38R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
5L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
10L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
15L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
26L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
32L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
38L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
53 1R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
53 1L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
68 2R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
68 2L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
57L		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0 100	4130
57R		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0 100	4130

NOTES A All dimensions are in inches

B Unindexed stringers and all stiffeners are identified by part number

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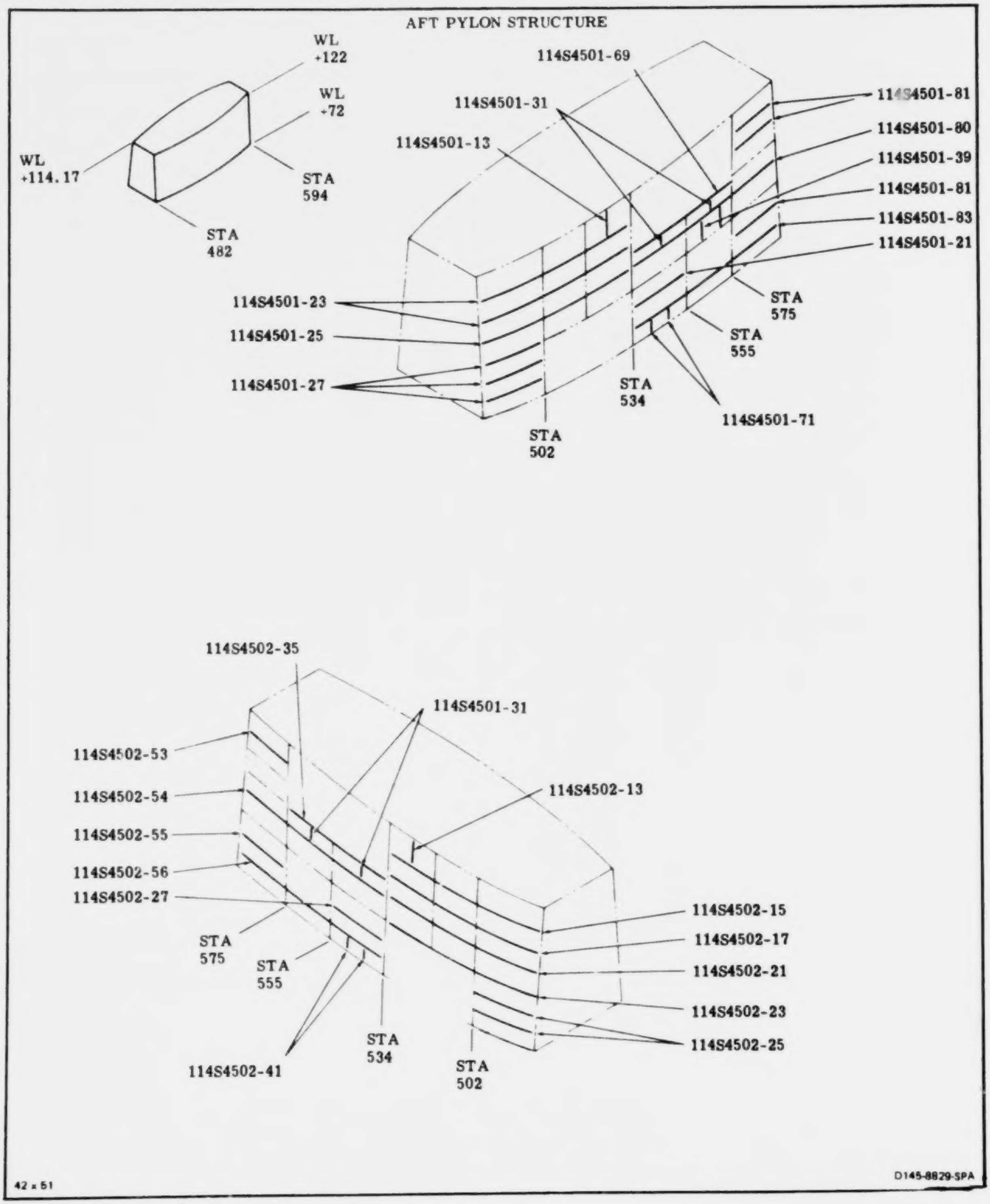
2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16


AFT PYLON STRUCTURE
WL +122
WL +72
WL +114.17
STA 594
STA 482
114S4501-69
114S4501-31
114S4501-13
114S4501-81
114S4501-80
114S4501-39
114S4501-81
114S4501-83
114S4501-21
114S4501-23
114S4501-25
114S4501-27
STA 575
STA 555
STA 534
STA 502
114S4501-71
114S4502-35
114S4501-31
114S4502-53
114S4502-54
114S4502-55
114S4502-56
114S4502-27
114S4502-13
STA 575
STA 555
114S4502-15
114S4502-17
114S4502-21
114S4502-23
114S4502-25
114S4502-41
STA 534
STA 502
42 x 51
D145-8829-SPA

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2-16 STRINGERS (GENERAL INFORMATION) (Continued) 2-16

STRINGERS — AFT PYLON STRUCTURE

STRINGER NO. (NOTE B.)	LOCATION			PART NO	ORIGINAL MATERIAL	REPAIR MATERIAL
	BL	WL	STATION			
—		+ 84.5	534 THRU 555.3	114S4501-21	VS70503-1 7075-T6	0.032 7075-T6
—		+ 103.25	482 THRU 534	114S4501-23	VS70503-1 7075-T6	0.032 7075-T6
—		+ 109.5	482 THRU 534	114S4501-23	VS70503-1 7075-T6	0.032 7075-T6
—		+ 97	482 THRU 534	114S4501-25	VS70503-3 7075-T6	0.050 7075-T6
—		+ 78.25	482 THRU 502.4	114S4501-27	VS70503-1 7075-T6	0.032 7075-T6
—		+ 84.5	482 THRU 502.4	114S4501-27	VS70503-1 7075-T6	0.032 7075-T6
—		+ 90.75	482 THRU 502.4	114S4501-27	VS70503-1 7075-T6	0.032 7075-T6
—		+ 100	534 THRU 575.5	114S4501-69	HARVEY 15078 7075-T6	0.063 4130
—		+ 97	534 THRU 594	114S4501-80	0.063 7075-T6 BARE	0.071 7075-T6 BARE
—		+ 84.5	575 THRU 594	114S4501-81	ALCOA 83264 7075-T6	0.050 4130
—		+ 109.5	575 THRU 594	114S4501-81	ALCOA 83264 7075-T6	0.050 4130
—		+ 115.75	575 THRU 594	114S4501-81	ALCOA 83264 7075-T6	0.050 4130
—		+ 78.25	534 THRU 594	114S4501-83	BAC1517-1523 7075-T6	0.050 7075-T6
—		+ 109.5	482 THRU 534	114S4502-15	VS70503-1 7075-T6	0.032 7075-T6
—		+ 103.25	482 THRU 534	114S4502-17	VS70503-1 7075-T6	0.032 7075-T6
—		+ 97	482 THRU 534	114S4502-21	VS70503-3 7075-T6	0.050 7075-T6
—		+ 90.75	482 THRU 534	114S4502-23	ALCOA 22477 7075-T6	0.040 4130
—		+ 78.25	482 THRU 518	114S4502-25	VS70503-1 7075-T6	0.032 7075-T6
—		+ 84.5	482 THRU 518	114S4502-25	VS70503-1 7075-T6	0.032 7075-T6
—		+ 84.5	534 THRU 555.3	114S4502-27	VS70503-1 7075-T6	0.032 7075-T6
—		+ 100	534 THRU 575.5	114S4502-35	HARVEY 15078 7075-T6	0.063 4130
—		+ 115.75	575.5 THRU 594	114S4502-53	HARVEY 15152 7075-T6	0.032 4130
—		+ 97	534 THRU 594	114S4502-54	0.063 7075-T6 BARE	0.071 7075-T6 BARE
—		+ 84.5	575.5 THRU 594	114S4502-55	ALCOA 83264 7075-T6	0.050 4130
—		+ 78.25	534 THRU 594	114S4502-56	BAC1517-1523 7075-T6	0.050 7075-T6

STIFFENERS — AFT PYLON STRUCTURE

LOCATION			PART NO	ORIGINAL MATERIAL	REPAIR MATERIAL
BL	WL	STATION			
	+ 109 THRU + 116	526	114S4501-13	ALCOA 67580 7075-T6	0.050 4130
(LH SIDE)	+ 97 THRU + 100	544.5	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(LH SIDE)	+ 97 THRU + 100	564	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(RH SIDE)	+ 97 THRU + 100	544.5	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(RH SIDE)	+ 97 THRU + 100	564	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
	+ 90 THRU + 97	561	114S4501-39	VS70504-4 7075-T6	0.040 7075-T6
	+ 90 THRU + 97	571	114S4501-39	VS70504-4 7075-T6	0.040 7075-T6
	+ 72 THRU + 78	540.4	114S4501-71	ALCOA 22477 7075-T6	0.040 4130
	+ 72 THRU + 78	547.9	114S4501-71	ALCOA 22477 7075-T6	0.040 4130
	+ 109 THRU + 116	526	114S4502-13	ALCOA 67580 7075-T6	0.050 4130
	+ 72 THRU + 78	540.4	114S4502-41	ALCOA 22477 7075-T6	0.040 4130
	+ 72 THRU + 78	547.9	114S4502-41	ALCOA 22477 7075-T6	0.040 4130

NOTES: A All dimensions are in inches
B Unindexed stringers and all stiffeners are identified by part number

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-17 STRINGER REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) 2-17

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

As Required

Personnel Required:

68G20 Aircraft Structural Repairer

67U30 Inspector

References:

TM 55-1500-204-25/1

Task 2-15

Task 2-343

Task 2-16

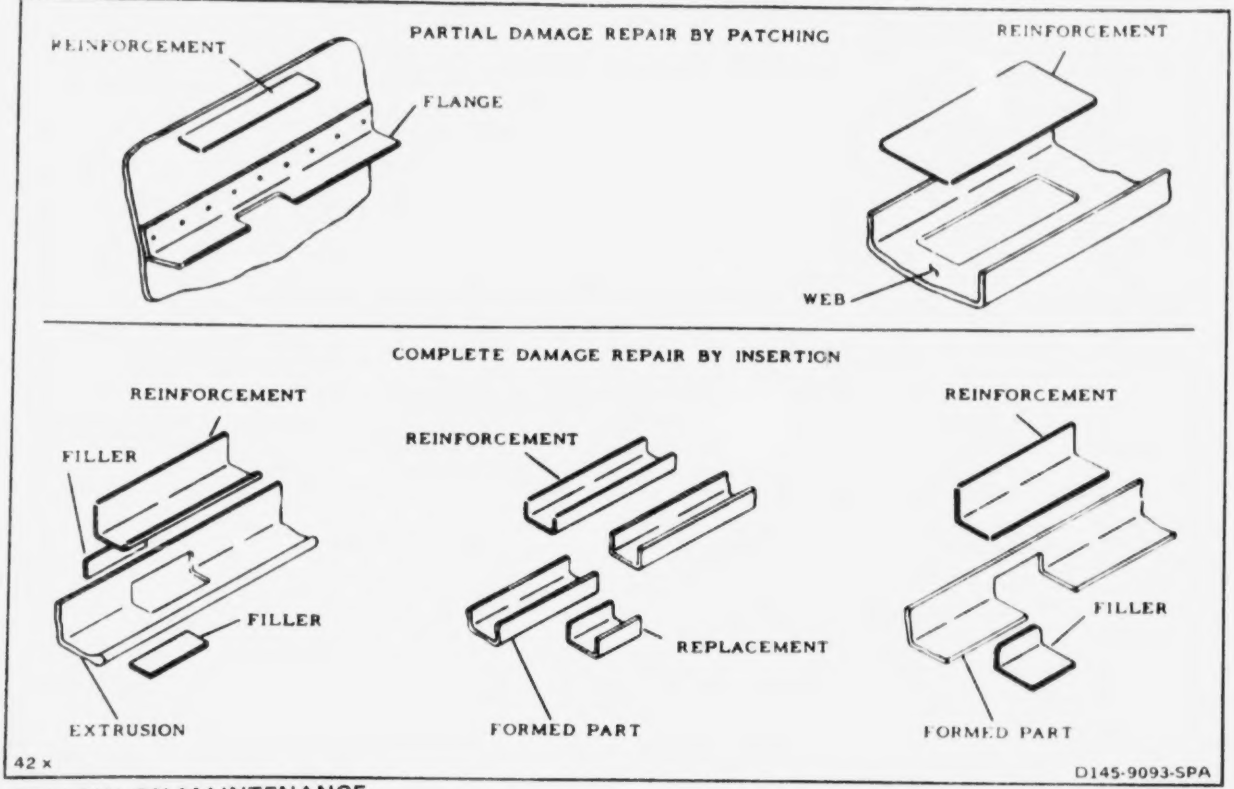
Equipment Condition:

As Required

General Safety Instructions:

As Required

1. Reparable damage is damage more extensive than minor damage (Task 2-15). If damage does not affect more than one-half of widest flange of a formed stringer it can be repaired by patching.
2. Extensive damage exceeds reparable damage. Extensive damage, such as loss of major portion of stringer or numerous isolated damages requires stringer replacement. Refer to Task 2-16 for general stringer location.
3. If damage to formed stringer affects more than one-half the widest flange or extends into the radius, repair shall be by insertion.
4. Insertion of partial replacement can be made if material and sectional dimensions in TM 55-1500-204-25/1 are used.
5. Use protective measures where dissimilar metals are used. (Task 2-343)


PARTIAL DAMAGE REPAIR BY PATCHING
REINFORCEMENT
FLANGE
REINFORCEMENT
WEB
COMPLETE DAMAGE REPAIR BY INSERTION
REINFORCEMENT
FILLER
FILLER
EXTRUSION
REINFORCEMENT
REPLACEMENT
FORMED PART
REINFORCEMENT
FILLER
FORMED PART
42 x
D145-9093-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-18 REPAIR FORMERS (GENERAL INFORMATION) 2-18

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-19
Task 2-20
Task 2-254
Task 2-304
Task 2-13
Task 2-358

Equipment Condition:
As Required

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1. Formers are members spaced at intervals thru fuselage and ramp assemblies, and aft pylon. Depending on location and function, formers are called partial, full, crown, floor or bottom formers.

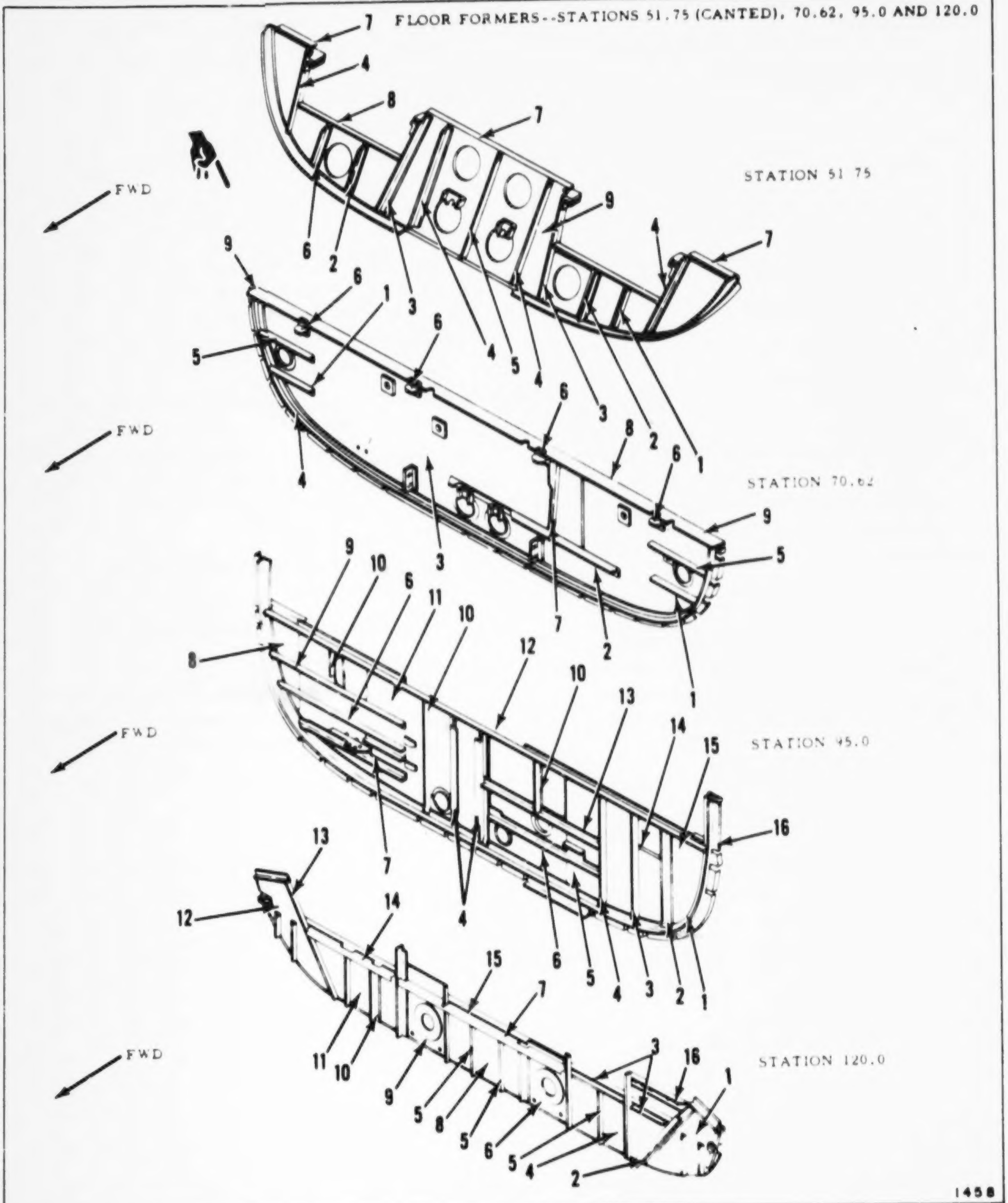
2. Formers provide structural reinforcement in a crosswise (tranverse) direction. Also, formers serve as attaching points for stringers, boundary members for major skin splices, and as a base for structural fittings.

3. Detailed information on formers and structure is provided for the following areas:
    a. Cockpit Fuselage
    b. Cabin Fuselage
    c. Pod Installation Cabin Fuselage
    d. Aft Fuselage
    e. Cargo Loading Ramp (Task 2-254)
    f. Aft Pylon (Task 2-304)

4. Damage to formers shall be classified as minor (Task 2-19), reparable, and damage requiring replacement (Task 2-20).

GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FLOOR FORMERS--STATIONS 51.75 (CANTED), 70.62, 95.0 AND 120.0
STATION 51.75
STATION 70.62
STATION 95.0
STATION 120.0
FWD
FWD
FWD
FWD
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1458

Former Repairs — Cockpit Fuselage Structure
(Sheet 1 of 9)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FLOOR FORMERS — STATIONS 51.75 (CANTED), 70.62, 95.0, AND 120.0

FORMER — STATION 51.75 (CANTED)

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
2	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
3	STIFFENER	ALCOA 9802	7075-T6	0.063	4130	2-29
4	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
5	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
6	STIFFENER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
7	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE C
8	CAP	ALCOA 9802	7075-T6	0.063	4130	NOTE C
9	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13

FORMER — STATION 70.62

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
2	STIFFENER	ALCOA 28546	7075-T6	0.071	4130	2-29
3	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
4	CAP	ALCOA 67580	7075-T6	0.063	4130	NOTE C
5	STIFFENER	0.025	2024-T4 BARE	0.032	2024-T3 CLAD	2-29
6	FITTING	ALCOA 76959	7075-T6	NOTE B		—
7	STIFFENER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-29
8	CAP	REYNOLDS 11416	7075-T6 BARE	0.071	4130	NOTE C
9	SKIRT	0.020	301 CRES	0.025	301 CRES	2-29

FORMER — STATION 95.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 80759	7075-T6	0.190	4130	NOTE C
2	STIFFENER	AND10133-0601	7075-T6	0.071	4130	2-29
3	STIFFENER	ALCOA 22653	7075-T6	0.080	4130	2-29
4	STIFFENER	ALCOA 59675	7075-T6	0.050	4130	2-29
5	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
6	STIFFENER	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	2-29
7	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
8	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
9	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
10	SUPPORT	AND10134-1201	7075-T6	0.071	4130	NOTE C
11	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
12	CAP	AND10134-1205	7075-T6	0.100	4130	NOTE C
13	STIFFENER	AND10134-1003	7075-T6	0.071	4130	2-29
14	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
15	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
16	SKIRT	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE C

FORMER — STATION 120.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
2	CAP	ALCOA 2129	7075-T6	0.160	4130	NOTE C
3	ANGLE	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE C
4	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
5	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
6	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
7	CHANNEL	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
8	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
9	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
10	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
11	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
12	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
13	CAP	0.090	7075-T6 BARE	0.100	7075-T6 CLAD	NOTE C
14	CHANNEL	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
15	CAP	ALCOA 33811	7075-T6	0.160	4130	NOTE C
16	CHANNEL	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13

NOTES:
- A All dimensions are in inches.
- B Replace fittings with section of original material.
- C TM 55-1500-204-25/1.

Former Repairs — Cockpit Fuselage Structure
(Sheet 2 of 9)

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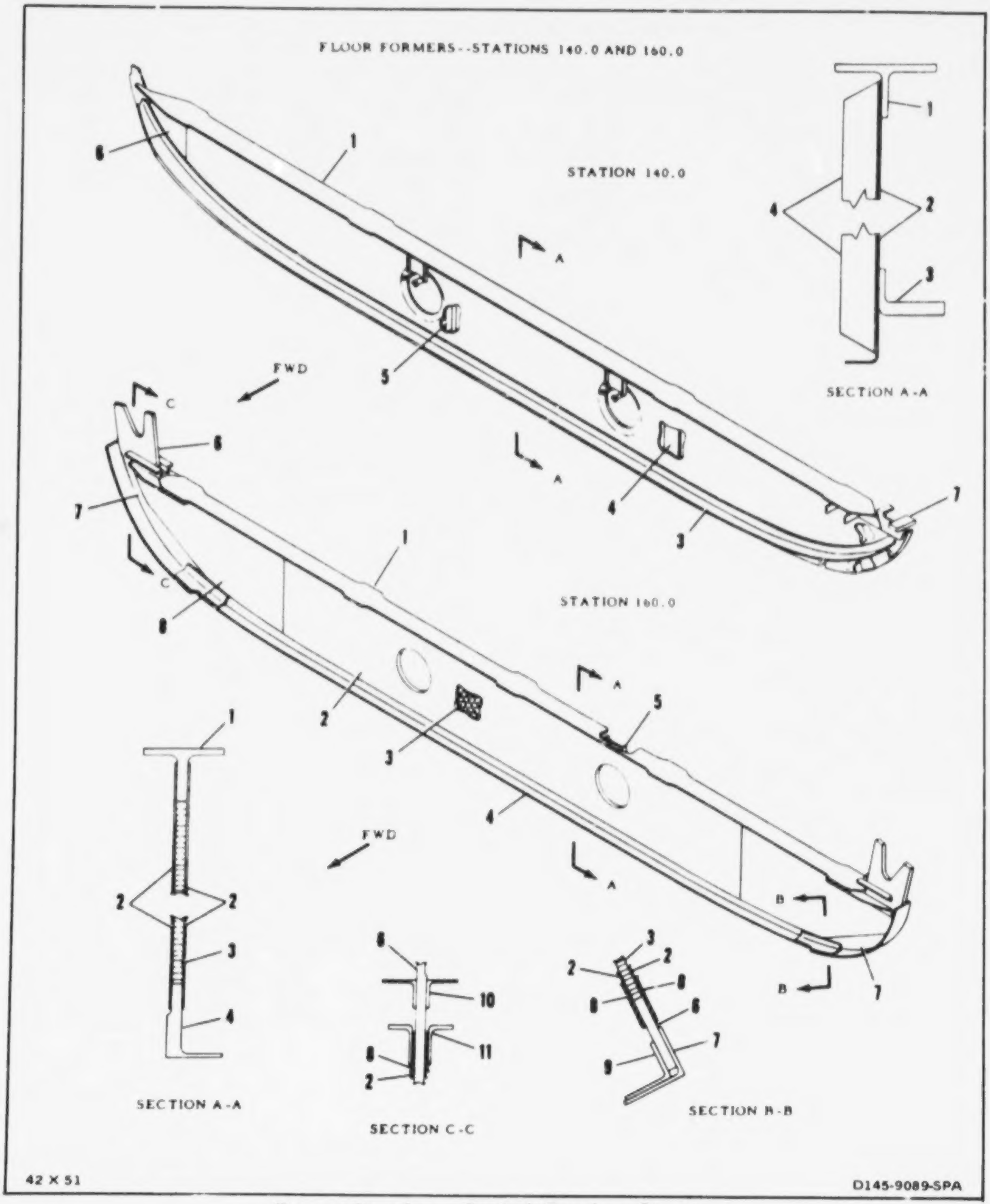
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FLOOR FORMERS--STATIONS 140.0 AND 160.0
STATION 140.0
STATION 160.0
SECTION A-A
SECTION A-A
SECTION C-C
SECTION B-B
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Former Repairs — Cockpit Fuselage Structure
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FLOOR FORMERS — STATIONS 140.0 AND 160.0

FLOOR FORMER — STATION 140.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 12756	7075-T6	0.160	4130	NOTE F
2	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
3	CAP	PHS90104	7075-T6	NOTE B		—
4	STIFFENER	ALCOA 22581	7075-T6	0.063	4130	2-29
5	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29
6	PLATE	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-13
7	ATTACHMENT	REYNOLDS 6447	7075-T6	NOTE C		—

FLOOR FORMER — STATION 160.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	V590302	7075-T6	NOTE D		—
2	SKIN	0.020	7075-T6 BARE	NOTE D		—
3	CORE	0.255 3.0-3/8-20N-3003		NOTE D		—
4	CAP	V590526	7075-T6	NOTE D		—
5	BRACKET	0.025	2024-T4 CLAD	NOTE E		—
6	ATTACHMENT	0.250	7075-T6 BARE	NOTE D		—
7	CAP	ALCOA 11638	7075-T6	0.100	4130	NOTE F
8	DOUBLER	0.016	7075-T6 BARE	0.020	7075-T6 CLAD	2-13
9	ANGLE	0.060	7075-T6 BARE	0.090	7075-T6 CLAD	NOTE F
10	ANGLE	ALCOA 22477	7075-T6	0.050	4130	NOTE F
11	ANGLE	ALCOA 51919	7075-T6	0.071	4130	NOTE F

NOTES
- A All dimensions are in inches.
- B Replace damaged section with a corresponding section of original material.
- C Replace with new attachment 11451833-5.
- D Component of bonded assembly. Refer to Task 2-358 for information on repair of sandwich honeycomb structures.
- E Replace with new bracket 114E4054-9.
- F TM 55-1500-204-23-1.

Cockpit Fuselage Structure
(Sheet 4 of 9)

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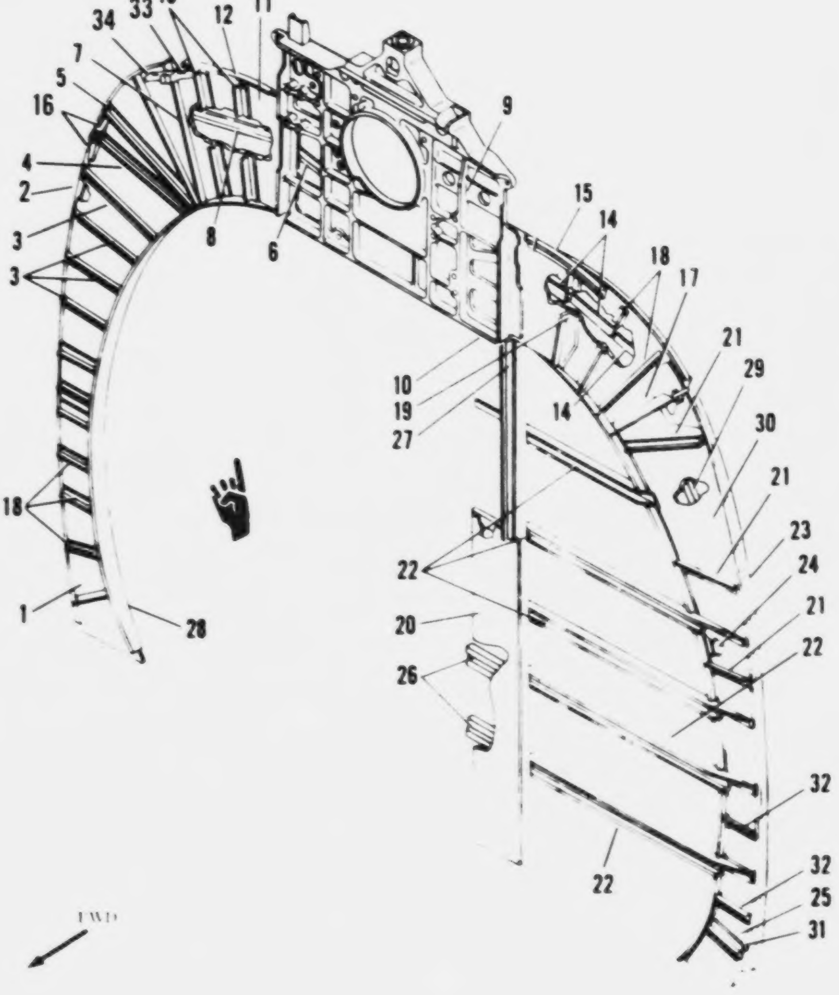
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER -- STATION 120.0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FWD

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Former Repairs — Cockpit Fuselage Structure
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 120.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.040	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
2	CAP	AND10134-1403	7075-T6	0.100	4130	NOTE G
3	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29
4	STIFFENER	ALCOA 60246	7075-T6	0.071	4130	2-29
5	STIFFENER	AND10133-0601	7075-T6	0.063	4130	2-29
6	ZEE	0.032	2024-T3	0.032	2024-T3	NOTE G
7	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6 CLAD	2-29
8	ZEE	0.032	2024-T3	0.032	2024-T3	NOTE G
9	FITTING		7075-T73652	NOTE B		—
10	CAP	ALCOA 22892	7075-0	0.094	7075-O	NOTE G
11	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
12	CAP	0.050	7075-0 BARE	0.050	7075-0 CLAD	NOTE G
13	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6 CLAD	2-29
14	CHANNEL	0.032	2024-T3	0.032	2024-T3	2-13
15	CAP		7075-T73652	NOTE C		—
16	FITTING		2014-T6	NOTE D		—
17	STIFFENER	AND10134-1003	7075-T6511	0.062	7075-T6511	2-29
18	STIFFENER	ALCOA 11820	7075-T6511	0.080	7075-T6511	2-29
19	STIFFENER	AND10134	7075-T6511	0.125	7075-T6511	2-29
20	WEB	0.025	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
21	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
22	CHANNEL	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-13
23	CAP	AND10134-1401	7075-T6	0.100	4130	NOTE G
24	CAP	ALCOA 22892	7075-T6	0.100	4130	NOTE G
25	WEB	0.032	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
26	HAT	0.063	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G
27	BRACKET	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	NOTE G
28	CAP	ALCOA 12756	7075-T6	0.160	4130	NOTE G
29	HAT	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	NOTE G
30	WEB	0.025	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
31	TEE	AND10136-1501	7075-T6	0.080	4130	NOTE G
32	STIFFENER	ALCOA 67580	7075-T6	0.036	4130	2-29
33	FITTING		2014-T6	NOTE E		—
34	FITTING		2014-T6	NOTE F		—

NOTES:
- A All dimensions are in inches
- B Replace with new fitting 145S1806-1
- C Replace with new fitting 145S1842-1
- D Replace with new fittting 114S1824-1 upper and 114S1824-3 lower
- E Replace with new fitting 114S1832-1 fwd and 114S1151-72 aft
- F Replace with new fitting 114S1832-3 fwd and 114S1831-3 aft
- G TM 55-1500-204-25/1

Former Repairs — Cockpit Fuselage Structure
(Sheet 6 of 9)

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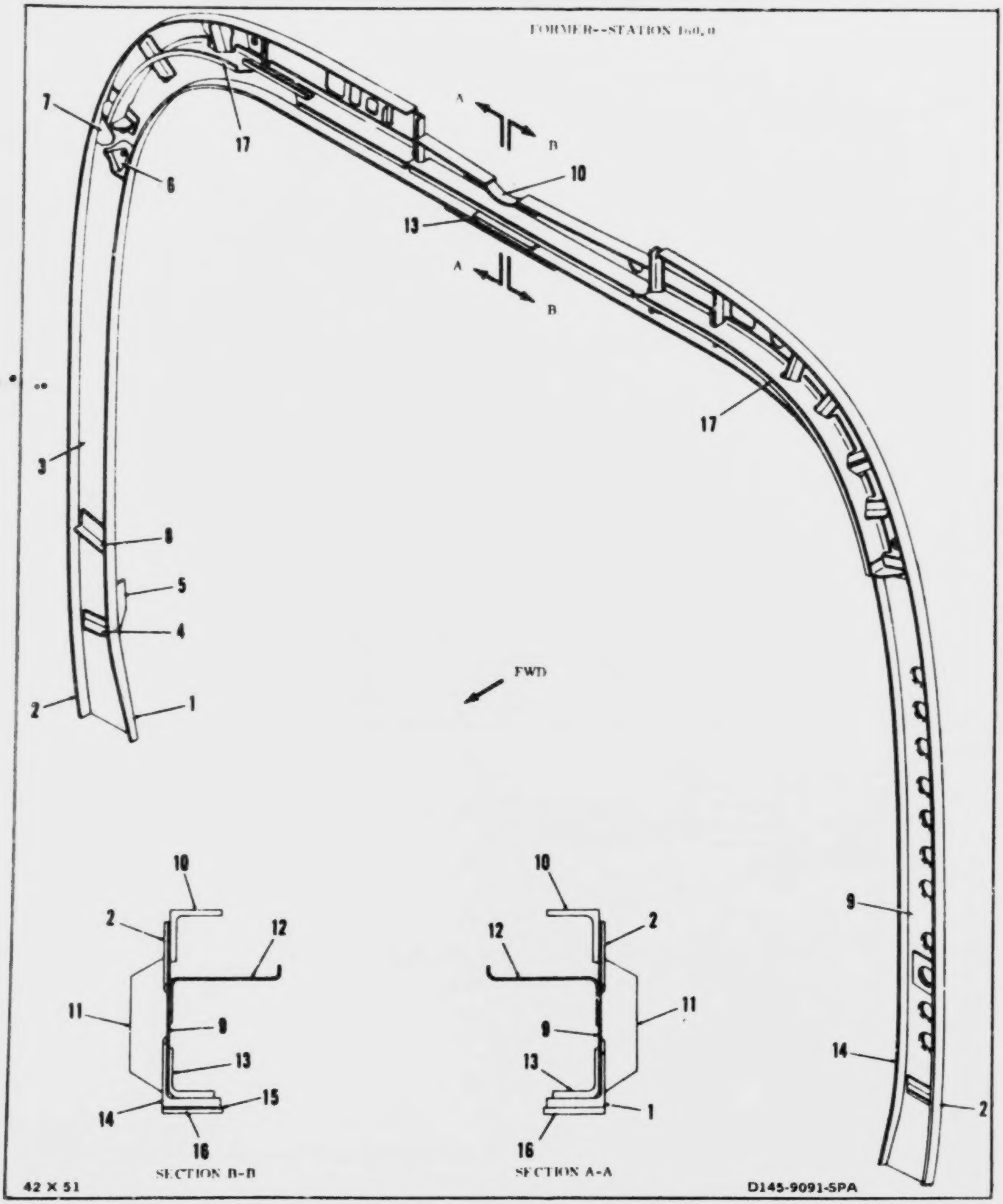
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMER--STATION 160.0
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SECTION B-B
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16
SECTION A-A
42 X 51
D145-9091-SPA

Former Repairs — Cockpit Fuselage Structure
(Sheet 7 of 9)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 160 0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 60278 7075 T6	0 200 4130	NOTE D
2	CAP	ALCOA 16871 7075 T6	0 100 4130	NOTE D
3	WEB	0 063 7075 T6 BARE	0 063 7075 T6 CLAD	2-13
4	STIFFENER	ALCOA 27695 7075 T6	0 036 4130	2-29
5	ANGLE	ALCOA 45827 7075 T6	0 080 4130	NOTE D
6	CLIP	0 050 2024 T4 CLAD	0 063 2024 T3 CLAD	NOTE D
7	DOUBLER	0 063 7075 T6 BARE	0 080 7075 T6 CLAD	NOTE D
8	ANGLE	0 040 2024 T4 CLAD	0 050 2024 T3 CLAD	NOTE D
9	WEB	0 040 7075 T6 BARE	0 050 7075 T6 CLAD	2-13
10	ATTACHMENT	7075 T6 FORGING	NOTE B	—
11	STIFFENER	ALCOA 31543 7075 T6	0 125 4130	2-29
12	ZEE	0 032 2024 T4 CLAD	0 040 2024 T3 CLAD	NOTE D
13	SPLICE ANGLE	0 71 301 1 2H CRES	NOTE C	NOTE D
14	CAP	ALCOA 14202 7075 T6	0 160 4130	NOTE D
15	FILLER	0 040 301 1 2H CRES	NOTE C	NOTE D
16	SPLICE PLATE	0 063 301 1 2H CRES	NOTE C	NOTE D
17	CHANNEL	0 032 2024 T4 CLAD	0 040 2024 T3 CLAD	2-13

NOTES A All dimensions are in inches

B Replace with attachment if damage is other than minor with attachment 114S2867 1

C Replace part if damage is other than minor with a new part same as original

D TM 55 1500 204 25 1

Former Repairs — Cockpit Fuselage Structure
(Sheet 8 of 9)

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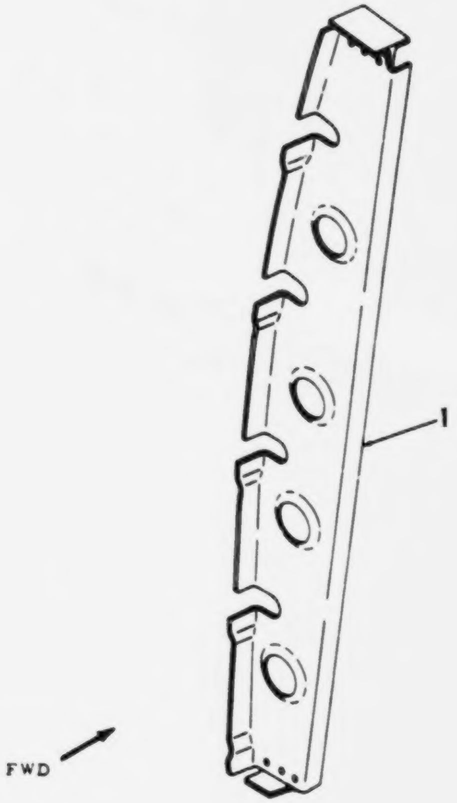
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

SIDE FORMER--STATION 110.5 LH SIDE



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13

NOTE

ALL DIMENSIONS ARE IN INCHES

42 X 51

D145-9092-SPA

Former Repairs — Cockpit Fuselage Structure (Sheet 9 of 9)

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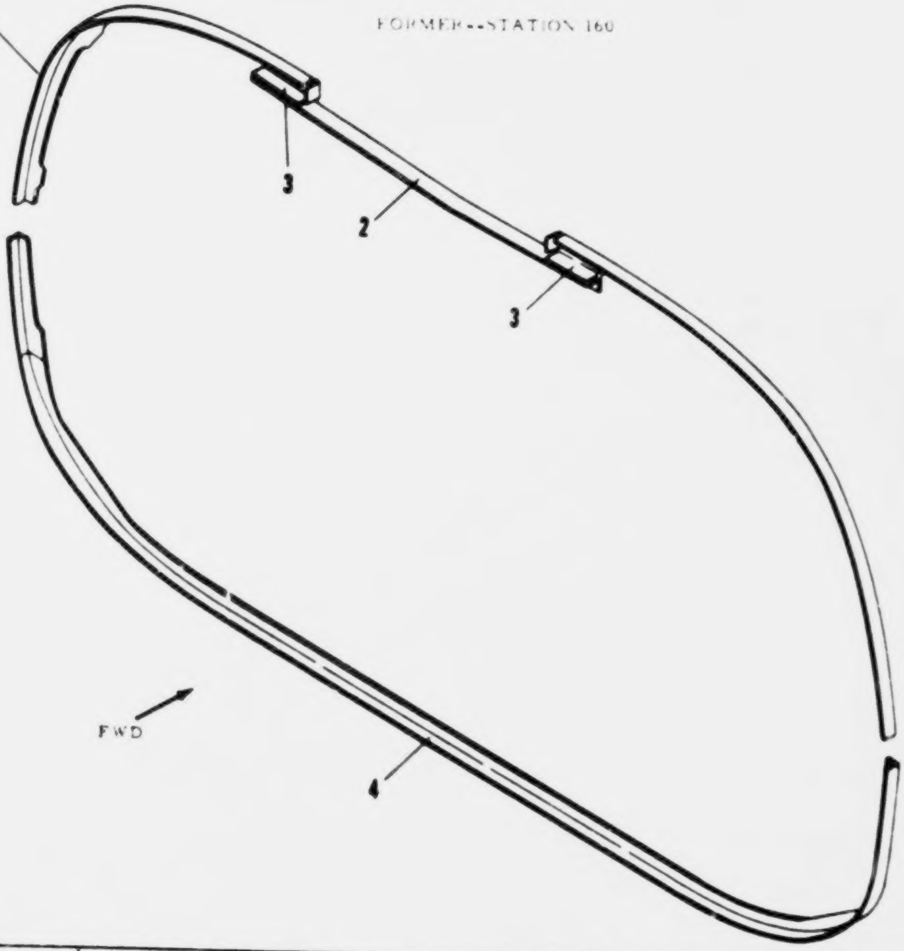
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER--STATION 160



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 59135 7075-T6	0.071 4130	2-336
2	CAP	ALCOA 30934 7075-T6	0.071 4130	2-336
3	ANGLE	0.063 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE B
4	CAP	VS90110 7075-T6	0.090 4130	2-336

NOTES

A. ALL DIMENSIONS ARE IN INCHES.
B. TM 55-1500-204-25/1

42 X 51

D146-9060-SPA

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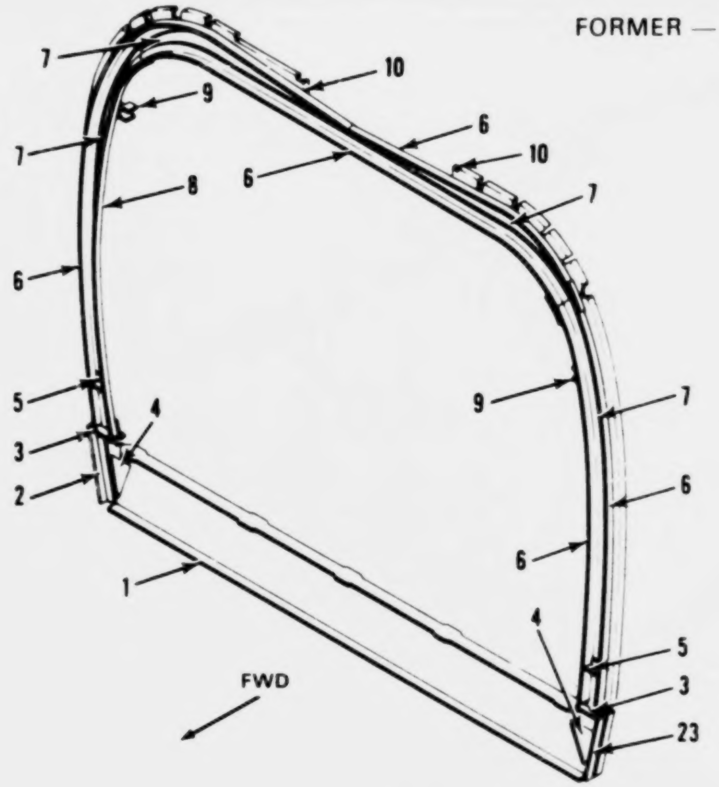
Former Repairs — Cabin Fuselage Structure Assembly (Sheet 1 of 14)

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 200.0



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	BONDED ASSEMBLY	0.255, 3.0-3/8-20N-3003	NOTE B.	—
2	ANGLE	AND1033-0601 7075-T6	0.071 4130	NOTE E.
3	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE E.
4	FITTING	0.250 7075-T6 BARE	NOTE C.	—
5	STIFFENER	ALCOA 30670 7075-T6	0.125 4130	2-29
6	CAP	0.125 4130	0.160 4130	NOTE E.
7	WEB	0.050 2024-T4 BARE	0.063 2024-T3 CLAD	NOTE E.
8	CAP	REYNOLDS 6033 6075-T6	0.125 4130	—
9	FITTING	2014-T6	NOTE D.	—
10	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	2-29

NOTES

A. ALL DIMENSIONS ARE IN INCHES.
B. THE BONDED ASSEMBLY IS OF SANDWICH HONEYCOMB CONSTRUCTION. REFER TO TM 55-1500-204-25/1 FOR TYPICAL REPAIRS.
C. INTEGRAL PART OF THE BONDED ASSEMBLY. DAMAGE OTHER THAN NEGLIGIBLE NECESSITATES REPLACEMENT OF THE BONDED ASSEMBLY.
D. REPLACE WITH NEW FITTING 114S2836-1 LH OR -2 RH IF DAMAGE IS GREATER THAN MINOR.
E. TM 55-1500-204-25/1.

1459

Former Repairs — Fuselage Structure Assembly
(Sheet 2 of 14)

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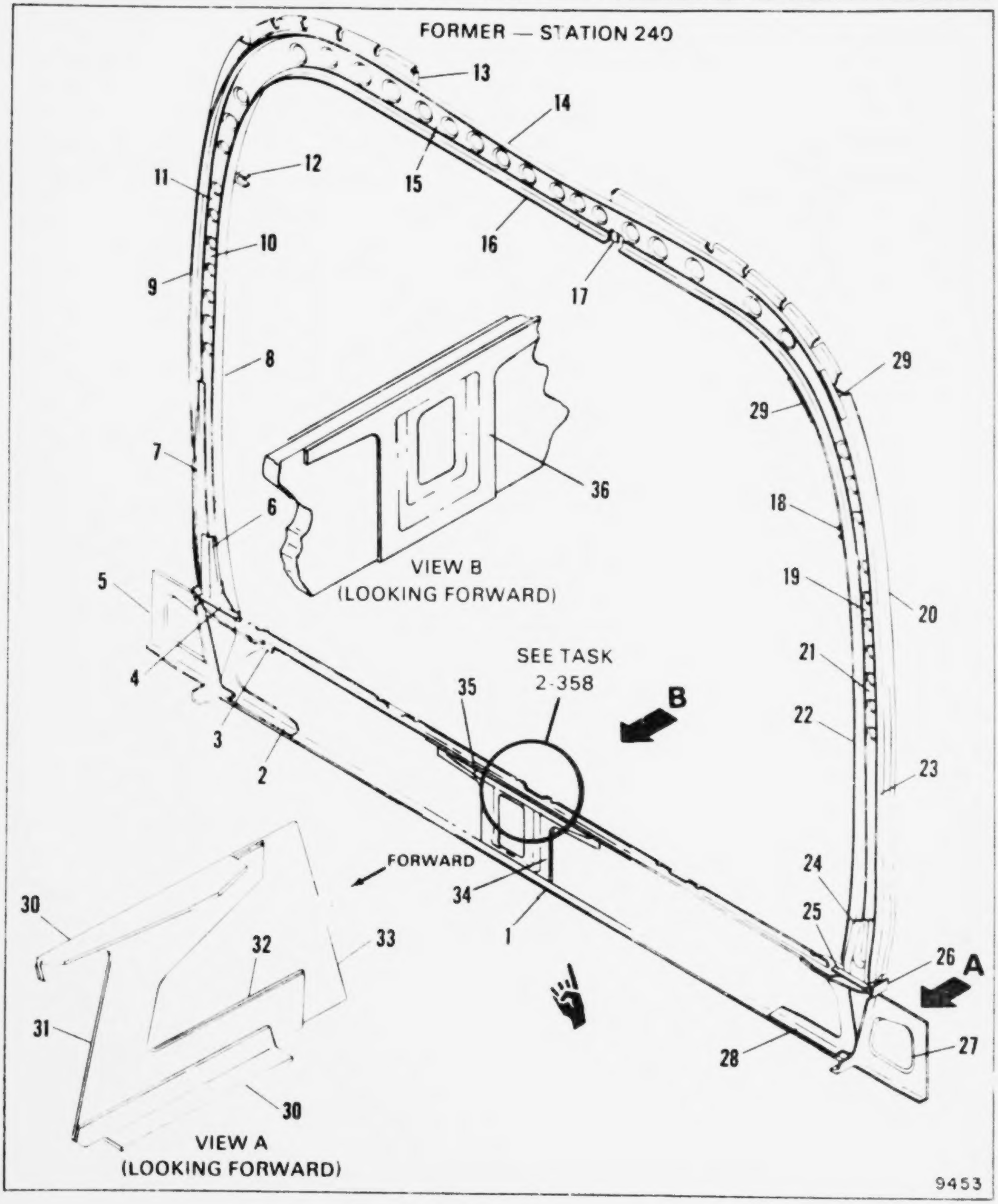
FORMER — STATION 240
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30
30
31
32
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34
35
36
VIEW B
(LOOKING FORWARD)
SEE TASK
2-358
B
A
FORWARD
VIEW A
(LOOKING FORWARD)
9453

Former Repairs — Fuselage Structure Assembly
(Sheet 3 of 14)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 240

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	BONDED ASSEMBLY	0 405, 3 0-3/8-20N-3003		NOTE B	
2	ANGLE	AND10133-1404	7075-T6	0 190	4130
3	ANGLE	AND10133-1404	7075-T6	0 190	4130
4	ANGLE	0 040	7075-T6 BARE	0 050	7075-T6 CLAD
5	FITTING		7075-T6 FORGING	NOTE C	
6	CAP	AND10134-1407	7075-T6	0 160	4130
7	CAP	REYNOLDS 7825	7075-T6	0 190	4130
8	CAP	VS90115	7075-T6	0 125	4130
9	CAP	VS90115	7075-T6	0 125	4130
10	WEB	0 063	2024-T4 CLAD	0 063	2024-T3 CLAD
11	WEB	0 040	2024-T4 CLAD	0 050	2024-T3 CLAD
12	FITTING		2014-T6	NOTE D	
13	STIFFENER	ALCOA 22477	7075-T6	0 050	4130
14	CAP	AND10133-0601	7075-T6	0 071	4130
15	WEB	0 032	2024-T4 CLAD	0 040	2024-T3 CLAD
16	CAP	AND10135-1002	7075-T6	0 071	4130
17	STIFFENER	ALCOA 22477	7075-T6	0 050	4130
18	FITTING		2014-T6	NOTE D	
19	WEB	0 040	2024-T4 CLAD	0 050	2024-T3 CLAD
20	CAP	VS90115	7075-T6	0 125	4130
21	WEB	0 063	2024-T4 CLAD	0 063	2024-T3 CLAD
22	CAP	VS90115	7075-T6	0 125	4130
23	CAP	REYNOLDS 7825	7075-T6	0 190	4130
24	CAP	and10134-1407	7075-t6	0 160	4130
25	ANGLE	0 040	7075-T6 BARE	0 190	4130
26	ANGLE	AND10133-1404	7075-T6	0 190	4130
27	FITTING		7075-T6 FORGING	NOTE C	
28	ANGLE	AND10133-1404	7075-T6	0 190	4130
29	STRAP	0 090	7075-T6 BARE	0 190	4130
30	ANGLE		7075-T6511	AND10133-1404 X 11 0	
31	DOUBLER SPLICE	0 020	7075-T6 BARE	0 020	7075-T6 BARE NOTE B
32	SHIM	0 020	7075 T6 BARE	0 020	7075-T6 BARE NOTE B
33	DOUBLER, AFT	0 016	7075-T6 BARE	0 016	7075-T6 BARE NOTE B
34	DOUBLER (FORWARD)	0 020	7075-T6 BARE	0 020	7075-T6 BARE NOTE B
35	STRAP	0 050	7075-T6 BARE	0 050	7075-T6 BARE NOTE B
36	DOUBLER (AFT)	0 050	7075-T6 BARE	0 050	7075-T6 BARE NOTE B

NOTES: A All dimensions are in inches

B The bonded assembly is of sandwich honeycomb construction

C The fitting is a part of the bonded assembly Damage other than minor necessitates replacement of the bonded assembly

D Replace with new fitting 114S2836-1 LH or -2 RH

Former Repairs — Fuselage Structure Assembly
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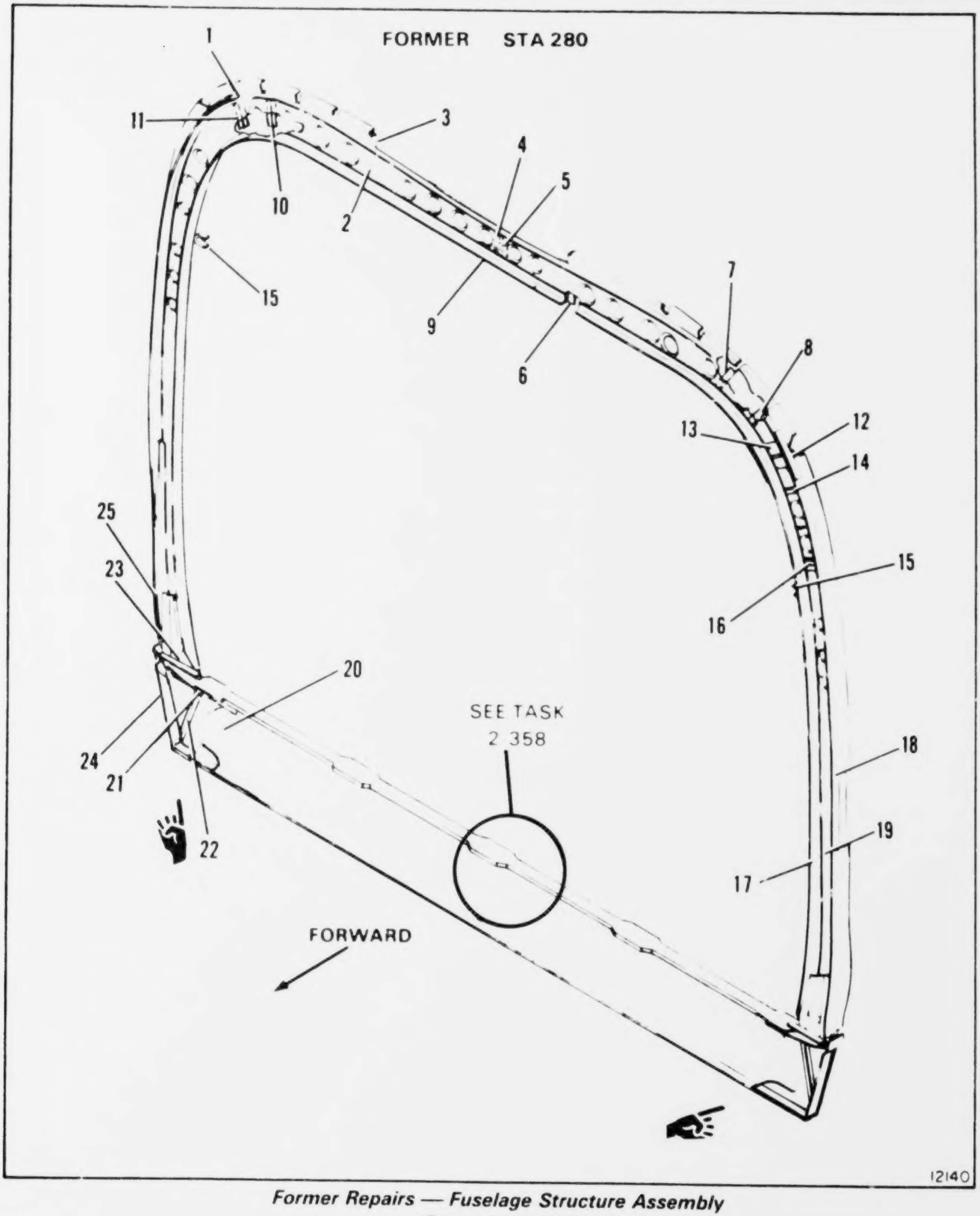
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMER STA 280
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SEE TASK
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FORWARD
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Former Repairs — Fuselage Structure Assembly
(Sheet 4.1 of 14)

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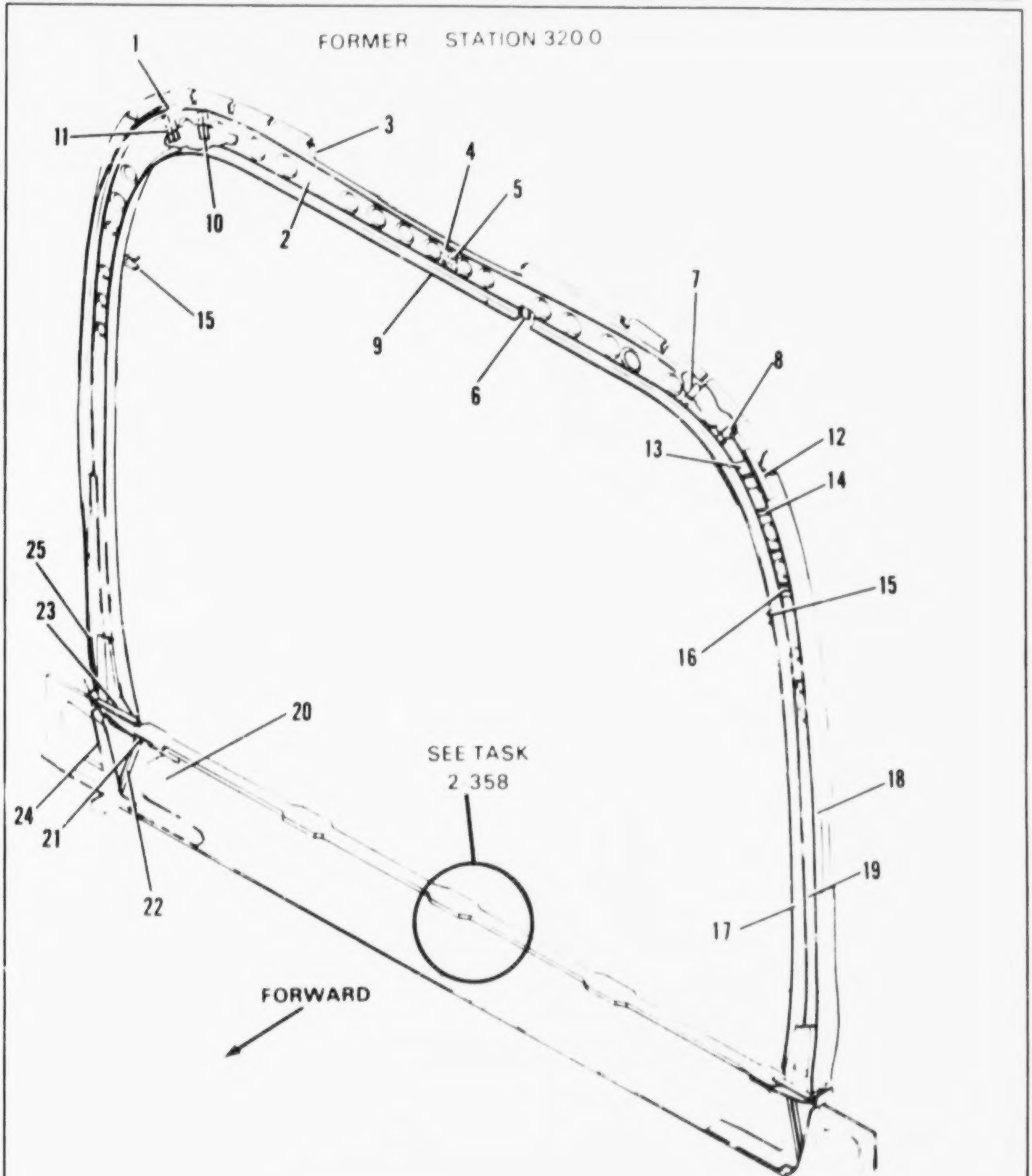
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMER STATION 320.0
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SEE TASK
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FORWARD
9454

Former Repairs — Fuselage Structure Assembly
(Sheet 5 of 14)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 280

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0.125 4130		0.160	4130
2	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
3	SUPPORT	BAC1503	7075-T6	BAC1503	7075-T6
4	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
5	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
6	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
9	CAP	0.125 4130		0.160	4130
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
12	SPLICE	0.125 4130		0.160	4130
13	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
14	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
15	FITTING		2014 T6	NOTE D	
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	CAP	AND10133-0701	7075-T6	0.071	4130
18	CAP	0.125 4130		0.160	4130
19	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
20	BONDED ASSEMBLY	0.255 3.0-3/8-20N-3003		NOTE B	
21	ANGLE	AND10134-1402	7075-T6	0.160	4130
22	ANGLE	AND10133-0601	7075-T6	0.071	4130
23	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
24	ANGLE	AND10133-0601	7075-T6	0.071	4130
25	FITTING	0.400	7075-T6 PLATE	NOTE E	

FORMER — STATION 320

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0.125 4130		0.160	4130
2	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
3	SUPPORT	BAC1503	7075-T6	BAC1503	7075-T6
4	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
5	ANGLE	HARVEY 15078	7075-T6	HARVEY 15078	7075-T6
6	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
9	CAP	0.125 4130		0.160	4130
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
12	SPLICE	0.125 4130		0.160	4130
13	ATTACHMENT	ALCOA 43774	7075-T6	ALCOA 43774	7075-T6
14	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
15	FITTING		2014 T6	NOTE D	
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	CAP	AND10133-0701	7075-T6	0.071	4130
18	CAP	0.125 4130		0.160	4130
19	WEB	0.050	2024-0 CLAD	0.063	2024-0 CLAD
20	BONDED ASSEMBLY	0.405 3.0-3/8-20N-3003		NOTE B	
21	ANGLE	AND10134-1402	7075-T6	0.160	4130
22	ANGLE	AND10133-0601	7075-T6	0.071	4130
23	ANGLE	0.040	7075-T6 BARE	0.063	7075-T6 CLAD
24	ANGLE	AND10133-0601	7075-T6	0.071	4130
25	FITTING	0.400	7075-T6 PLATE	NOTE E	

NOTES:
- A All dimensions are in inches.
- B The bonded assembly is of sandwich honeycomb construction.
- C Integral part of bonded assembly, damage other than minor necessitates replacement of bonded assembly.
- D Replace with new fitting 114S2836-1 LH or -2 RH if damage is greater than minor.
- E Replace with new fitting 114S2409-23 or -24 if damage is greater than minor.

Former Repairs — Fuselage Structure Assembly
(Sheet 6 of 14)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

NOTES

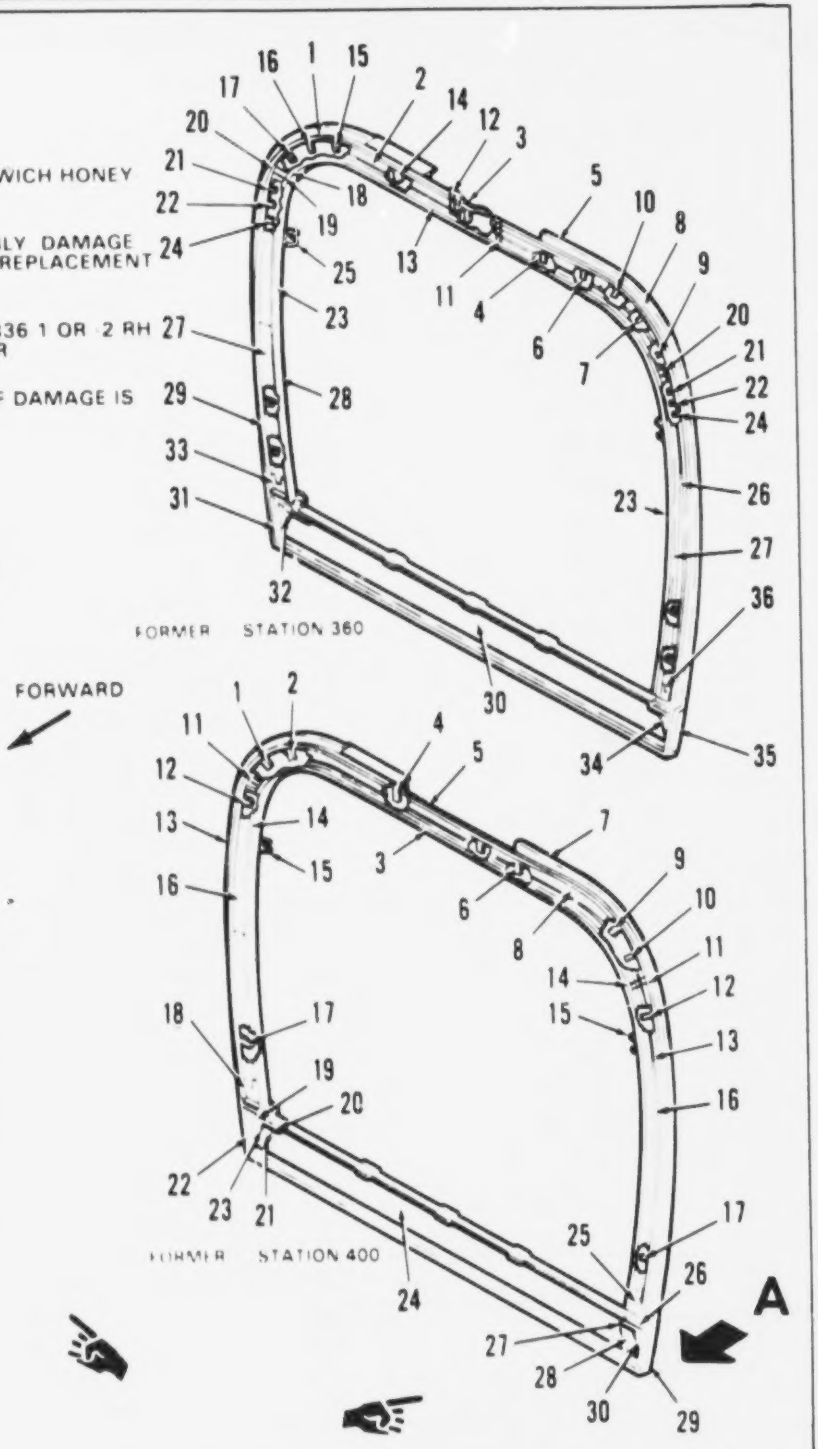
A ALL DIMENSIONS ARE IN INCHES

B THE BONDED ASSEMBLY IS OF SANDWICH HONEYCOMB CONSTRUCTION

C INTEGRAL PART OF BONDED ASSEMBLY DAMAGE OTHER THAN MINOR NECESSITATES REPLACEMENT OF BONDED ASSEMBLY

D REPLACE WITH NEW FITTING 114S2836 1 OR -2 RH IF DAMAGE IS GREATER THAN MINOR

E REPLACE WITH NEW ATTACHMENT IF DAMAGE IS GREATER THAN MINOR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FORMER STATION 360
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FORMER STATION 400
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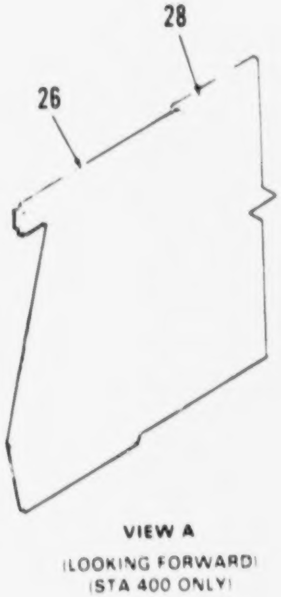

VIEW A
(LOOKING FORWARD)
(STA 400 ONLY)

9452

Former Repairs — Fuselage Structure Assembly
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 360

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	0 125 4130		0 160	4130
2	WEB	0 050	HT T42	0 0063	2024-T3 CLAD
3	ATTACHMENT		4130-STLBAR	NOTE E	
4	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
5	CAP	AND10136-2001	7075-T6	0 080	4130
6	SUPPORT	BAC1503-1591	7075-T6	BAC1503- 1591	7075-T6
7	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
8	CAP	0 125 4130		0 160	4130
9	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075 T6
10	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
11	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075 T6
12	ANGLE	ALCOA 9802	7075 T6	ALCOA 9802	7075-T6
13	CAP	0 125 4130		0 160	4130
14	SUPPORT	BAC1503-1591	7075 T6	BAC1503 1591	7075-T6
15	ANGLE	ALCOA 9802	7075 T6	ALCOA 9802	7075 T6
16	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
17	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
18	SPLICE	0 125 4130		0 160	4130
19	ATTACHMENT	ALCOA 43774	7075 T6	ALCOA 43774	7075-T6
20	SPLICE	0 125 4130		0 160	4130
21	ANGLE	ALCOA 9802	7075-T6	ALCOA 9802	7075-T6
22	ANGLE	ALCOA 9802	7075 T6	ALCOA 9802	7075 T6
23	CAP	0 125 4130		0 160	4130
24	ANGLE	ALCOA 9802	7075 T6	ALCOA 9802	7075-T6
25	FITTING		2014 T6	NOTE D	
26	CAP	0 125 4130		0 160	4130
27	WEB	0 050	HT T42	0 063	2024 T3 CLAD
28	CAP	TEXAS T2070	7075 T6	0 160	7075 T6
29	CAP	REYNOLDS 19273	7075 T6	0 160	7075 T6
30	BONDED ASSEMBLY	0 255 3 0-3/8 20N-3003		NOTE B	
31	ANGLE	AND10133-0601	7075 T6	0 071	4130
32	ANGLE	0 040	7075 T6 BARE	0 063	7075 T6 CLAD
33	FITTING	0 250	7075 T6 BARE	NOTE C	
34	ANGLE	0 040	7075 T5 BARE	0 063	7075 T6 CLAD
35	ANGLE	AND10133-0601	7075 T6	0 071	4130
36	FITTING	0 250	7075-T6 BARE	NOTE C	

FORMER — STATION 400

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	STIFFENER	AND10133-0601	7075 T6	0 071	4130
2	STIFFENER	AND10133-0601	7075-T6	0 071	4130
3	CAP	ALCOA 28172	7075 T6	ALCOA 28172	7075-T6
4	STIFFENER	ALCOA 22477	7075 T6	0 050	4130
5	CAP	ALCOA 67580	7075-T6	0 063	4130
6	STIFFENER	ALCOA 22990	7075 T6	0 071	4130
7	STIFFENER	AND10133-0601	7075 T6	0 071	4130
8	WEB	0 025	2024 T4 CLAD	0 032	2024 T3 CLAD
9	STIFFENER	AND10133-0601	7075 T6	0 071	4130
10	STIFFENER	AND10133 0601	7075 T6	0 071	4130
11	ATTACHMENT	ALCOA 43774	7075 T6	ALCOA 43774	7075 T6
12	STIFFENER	ALCOA 9802	7075 T6	ALCOA 9802	7075-T6
13	CAP	ALCOA 62564	7075-T6	0 080	4130
14	CAP	VS90109	7075 T6	0 080	4130
15	FITTING		2014 T6	NOTE D	
16	WEB	0 032	2024 T4 CLAD	0 040	2024 T3 CLAD
17	STIFFENER	ALCOA 22477	7075 T6	0 050	4130
18	ATTACHMENT	0 250	7075 T6	NOTE C	
19	ANGLE	0 040	7075-T6 BARE	0 050	7075-T6 CLAD
20	ANGLE	AND10134 1405	7075 T6	AND10134 1405 X 6 6	
21	DOUBLER	0 032	7075 T6 BARE	NOTE C	
22	ANGLE	AND10133-0601	7075 T6	0 071	4130
23	ANGLE	AND10133-0601	7075 T6	0 071	4130
24	BONDED ASSEMBLY	0 255 3 0 3/8-20N 3003		NOTE B	
25	ATTACHMENT	0 250	7075 T6	NOTE C	
26	ANGLE	0 040	7075-T6 BARE	0 050	7075-T6 CLAD
27	ANGLE	AND10134-1405	7075-T6	AND10134-1405 X 6 6	
28	DOUBLER	0 032	7075-T6 BARE	NOTE C	
29	ANGLE	AND10133-0601	7075-T6	0 071	4130
30	ANGLE	AND10133-0601	7075 T6	0 071	4130

Former Repairs — Fuselage Structure Assembly
(Sheet 8 of 14)

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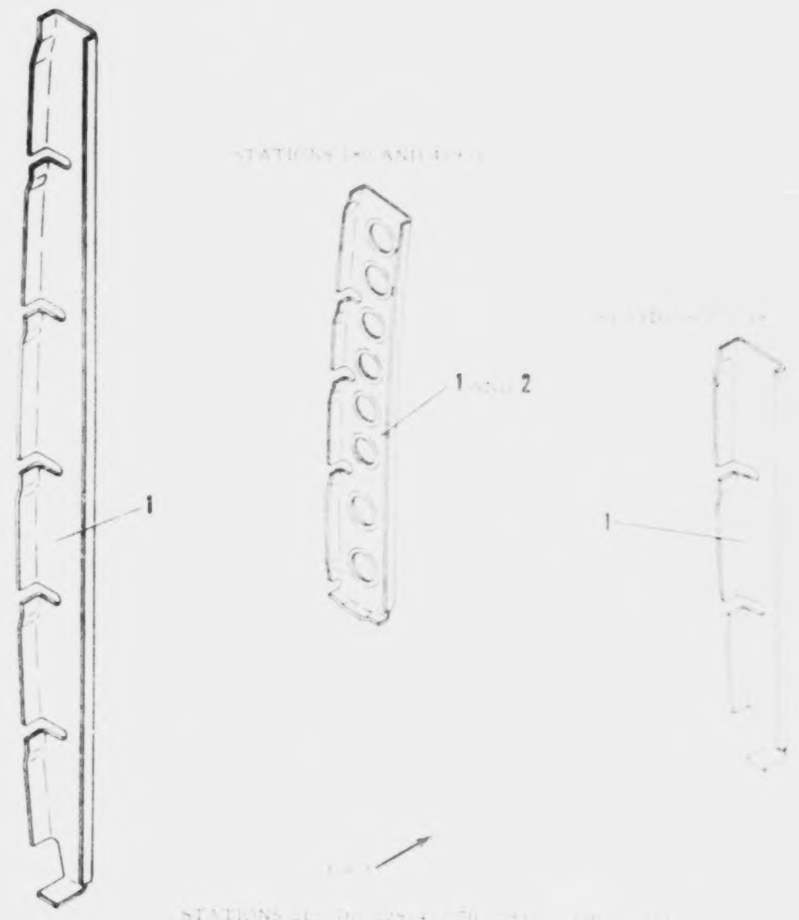
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

SIDE FORMERS

STATIONS 212.76, 225.4, 270, 293.5, 306 [illegible]
316.7, 413.41, AND 426.5



STATIONS 212.76, 225.4, 250, 293 [illegible] 306 [illegible]
316.7, [illegible] AND 426 [illegible]

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	NOTE C.

STATION 180

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
2	FORMER	0.025 2024-T4	0.032 2024-T3	NOTE C.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. THE LH FORMERS ARE SHOWN. THE RH FORMERS ARE SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO LH AND RH CONFIGURATIONS
C. TM 55-1500-204-25/1

42 X 51

D145-9065-SPA

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 9 of 14)

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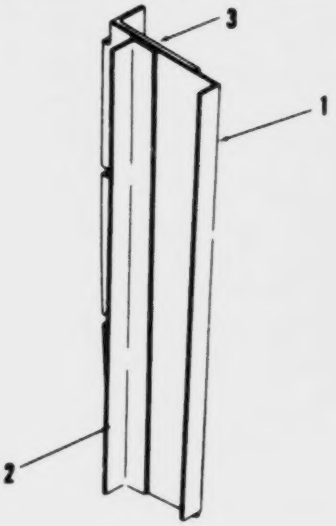
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

SIDE FORMERS

STATIONS 189.35, 238.06, 262.10, AND 372.42



NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. THE LH FORMERS ARE SHOWN. THE RH FORMERS ARE SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO LH AND RH CONFIGURATIONS
C. REPLACE WITH NEW FITTING 114S2857-1 LH OR -2 RH

STATIONS 189.35, 238.06, 262.10, AND 372.42

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
2	ANGLE	AND10134-0702 2024	0.071 4130
3	TENSION FITTING	--	NOTE C.

42 x 51

D145-9066-SPA

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 10 of 14)

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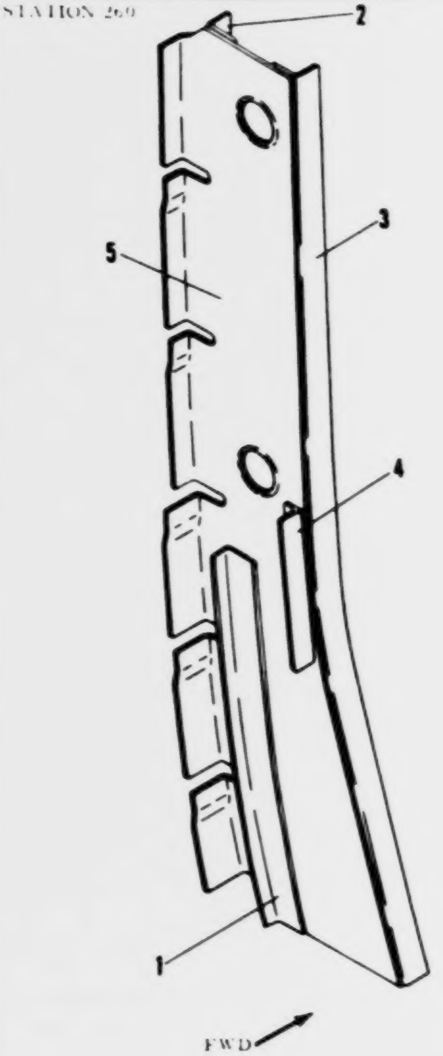

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. THE LH FORMER IS SHOWN. THE RH FORMER IS SIMILAR IN CONSTRUCTION. ORIGINAL AND REPAIR MATERIALS ARE APPLICABLE TO BOTH
C. REPLACE WITH NEW SUPPORT 114S2106-19 LH OR -20 RH

STATION 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	CAP	HARVEY 11301-3 7075-T6	0.125 4130
2	CAP	HARVEY 16119 7075-T6	0.160 4130
3	CAP	REYNOLDS 19273 7075-T6	0.080 4130
4	SUPPORT	ALCOA 62564 7075-T6	NOTE C.
5	WEB	0.040 7075-T6 CLAD	0.050 7075-T6 CLAD

42 X 51

D145-9067-SPA

Former Repairs — Cabin Fuselage Structure Assembly
(Sheet 11 of 14)

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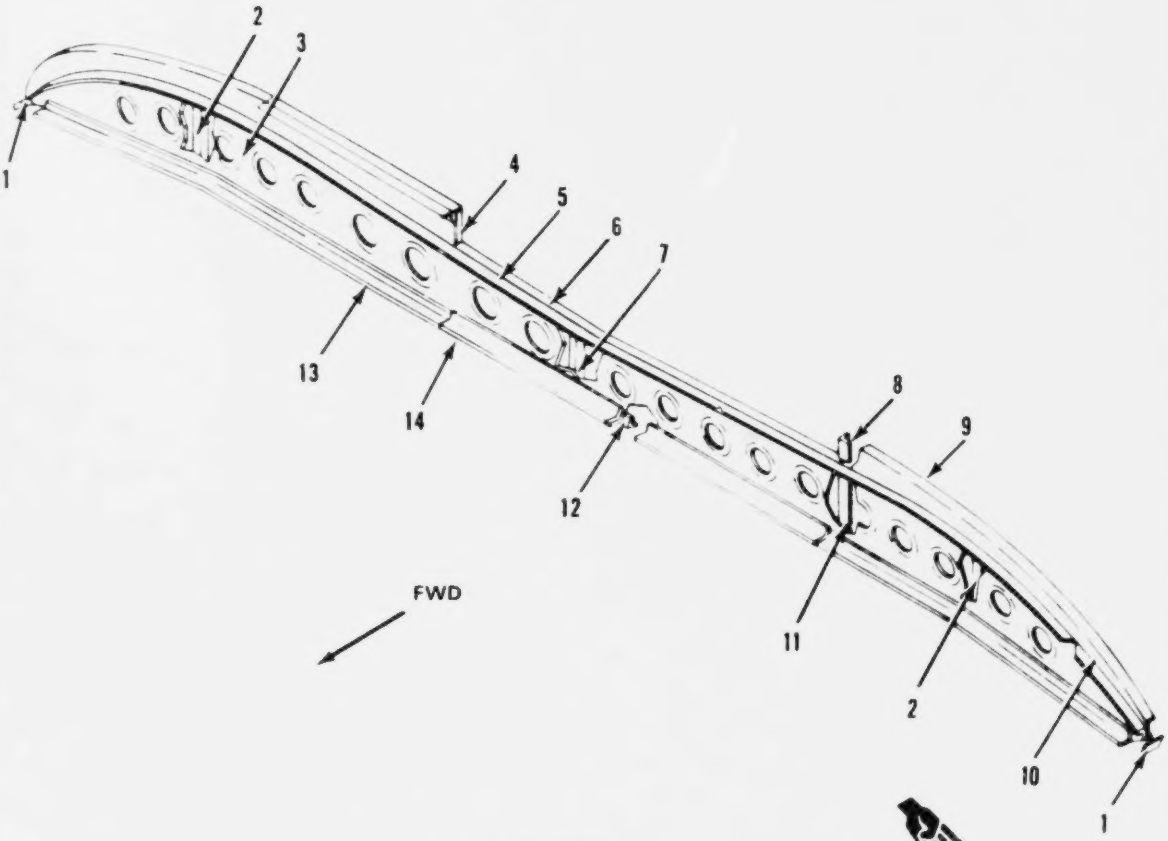
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

CROWN FORMERS—STA 180, 220, 260, 300, 340, 380, AND 420



STATION 180

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075-T6	0.090 4130	NOTE B.
2	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
3	WEB	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	NOTE B.
4	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
5	CAP	ALCOA 15820 7075-T6	0.080 4130	NOTE B.
7	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
10	CAP	ALCOA 15820 7075-T6	0.050 4130	NOTE B.
11	STIFFENER	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
13	CAP	ALCOA 67580	0.063 4130	NOTE B.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

D145-9068-SPA

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 12 of 14)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 220, 300, AND 420

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075 T6	0 090 4130	NOTE B
3	WEB	0 025 2024 T4 CLAD	0 032 2024 T3 CLAD	2-13
4	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
5	CAP	ALCOA 67580 7075 T6	0 063 4130	NOTE B
11	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
13	CAP	ALCOA 67580 7075 T6	0 063 4130	NOTE B

STATION 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075 T6	0 090 4130	NOTE B
2	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
3	WEB	0 32 2024 T4 CLAD	0 040 2024 T3 CLAD	2-13
4	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
5	CAP	VS90109 7075 T6	0 125 4130	NOTE B
7	STIFFENER	ALCOA 22981 7075 T6	0 063 4130	2-29
8	CLIP	ALCOA 67580 7075 T6	0 063 4130	NOTE B
9	CAP	AND10136 2001 7075 T6	0 100 4130	NOTE B
11	STIFFENER	ALCOA 67580 7075 T6	0 063 4130	2-29
13	CAP	ALCOA 15820 7075 T6	0 080 4130	NOTE B
14	CAP	0 063 2024 T4 CLAD	0 071 4130	NOTE B

STATION 340

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075-T6	0 090 4130	NOTE B
2	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
3	WEB	0 025 2024 T3 CLAD	0 032 2024 T4 CLAD	2-13
4	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
5	CAP	ALCOA 15820 7075 T6	0 080 4130	NOTE B
6	CAP	ALCOA 22477 7075 T6	0 050 4130	NOTE B
8	CLIP	ALCOA 67580 7075 T6	0 063 4130	NOTE B
11	STIFFENER	ALCOA 67580 7075 T6	0 063 4130	2-29
12	CAP	ALCOA 22477 7075 T6	0 050 4130	NOTE B
13	CAP	ALCOA 67580 7075-T6	0 063 4130	NOTE B

STATION 380

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CLIP	ALCOA 52966 7075 T6	0 090 4130	NOTE B
2	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
3	WEB	0 025 2024 T4 CLAD	0 032 2024 T4 CLAD	2-13
4	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
5	CAP	ALCOA 15820 7075 T6	0 080 4130	NOTE B
7	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
10	CAP	ALCOA 15820 7075 T6	0 080 4130	NOTE B
11	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2-29
13	CAP	ALCOA 67580 7075 T6	0 063 4130	NOTE B

NOTES:
A. All dimensions are in inches.
B. TM 55-1500-204-25/1

Former Repairs — Cabin Fuselage Structure Assembly
(Sheet 13 of 14)

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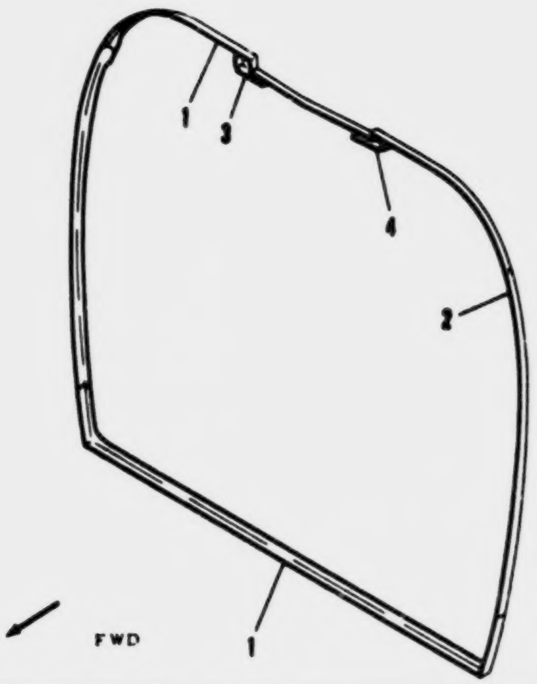
FORMER--STATION 440



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	VS90110 7075-T6	0.090 4130	NOTE B.
2	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE B.
3	GUSSET	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE B.
4	GUSSET	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE B.

NOTES

A. ALL DIMENSIONS ARE IN INCHES.
B. TM 55-1500-204-25/1

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D145-9069-SPA

Former Repairs — Cabin Fuselage Structure Assembly (Sheet 14 of 14)

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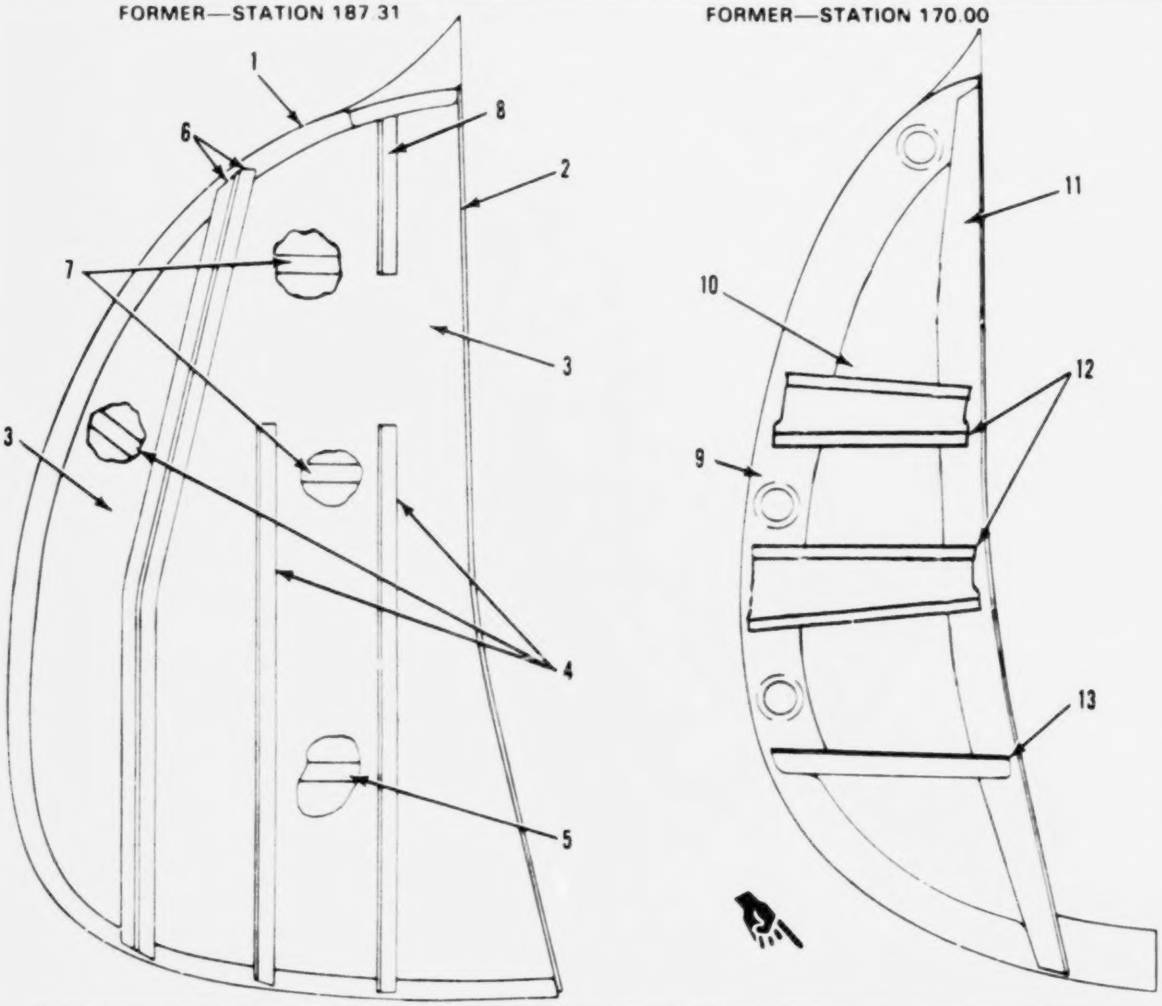
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER—STATION 187.31

FORMER—STATION 170.00



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 22008 7075-T6	0.071 4130	NOTE B.
2	ANGLE	ALCOA 22885 7075-T6	0.080 4130	NOTE B.
3	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	2-13
4	SUPPORT	ALCOA 44076 7075-T6	0.063 4130	NOTE B.
5	SUPPORT	AND10134-1202 7075-T6	0.100 4130	NOTE B.
6	ANGLE	ALCOA 44076 7075-T6	0.063 4130	NOTE B.
7	SUPPORT	0.050 2024-0 BARE	0.063 2024-0	NOTE B.
8	ANGLE	ALCOA 28546	0.050 4130	NOTE B.
9	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	NOTE B.
10	WEB	0.020 2024-T3 CLAD	0.025 2024-T3 CLAD	2-13
11	CAP	REYNOLDS 11730 7075-T6	0.090 4130	NOTE B.
12	SUPPORT	0.040 2024-T3 BARE	0.050 2024-T3	NOTE B.
13	SUPPORT	ALCOA 59409 7075-T6	0.063 4130	NOTE B.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

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Former Repairs, Pod Installation — Cabin Fuselage Structure (Sheet 1 of 3)

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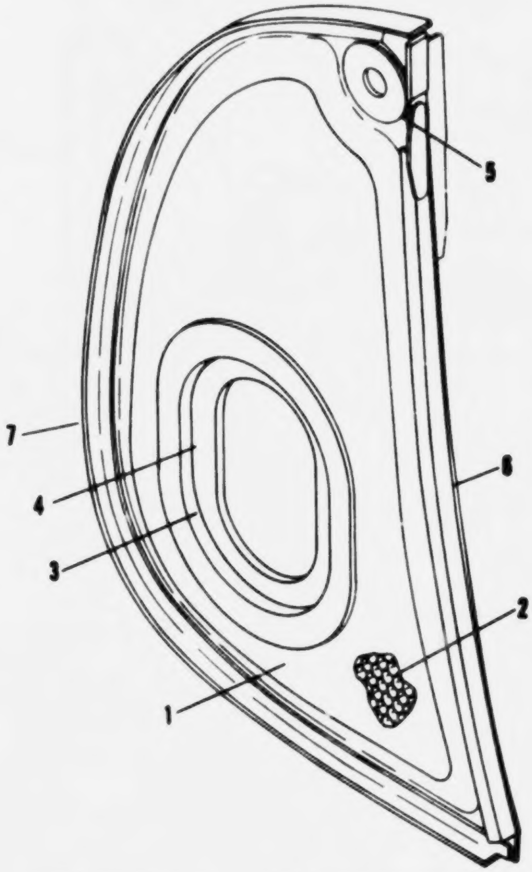
FORMER--TYPICAL AT STA 189.41, 238, 262.16, 372.36, 389.91 AND 438.50



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN	7075-T6 CLAD	--
*2	CORE	0.640, 3.1-3/16-10N 3003	--
**	CORE	0.640, 3.4-1/4-15N 3003	--
3	ADAPTER	NOTE B.	--
4	ADAPTER	NOTE C.	--
5	ADAPTER	NOTE D.	--
6	CAP	AND10137-0707 7075-T6	0.063 4130
***7	CAP	ALCOA 22008 7075-T6	0.071 4130
****	CAP	VS90332 7075-T6	0.071 4130

*USED AT STATIONS 189.41, 238, 372.36, 389.91 AND 438.50 ONLY
**USED AT STATIONS 262.16 ONLY
***USED AT STATIONS 238, 262.16, 372.36, 389.91, AND 438.5 ONLY
****USED AT STATIONS 189.41 ONLY

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REPLACE WITH ADAPTER 114S5836-2
C. REPLACE WITH ADAPTER 114S5831-1
D. REPLACE WITH ADAPTER 114S5838-1

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D145-9071-SPA

Former Repairs, Pod Installation — Cabin Fuselage Structure (Sheet 2 of 3)

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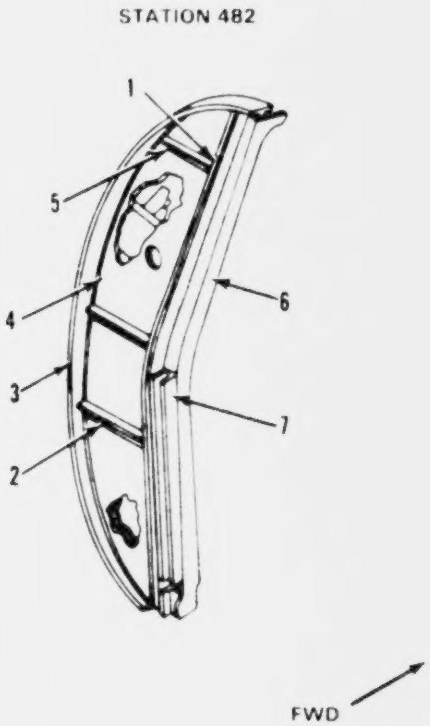
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	ALCOA 44076 7075-T6	0.063 4130	NOTE B
2	STIFFENER	AND10133-0601 7075-T6	0.071 4130	2-29
3	CAP	ALCOA 22008 7075-T6	0.071 4130	NOTE B
4	WEB	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD	2-13
5	STIFFENER	AND10133-0601 7075-T6	0.071 4130 STEEL	2-29
6	ATTACH MEMBER	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	NOTE B
7	CHANNEL	0.063 7075-T6	0.071 7075-T6	2-13

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

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Former Repairs, Pod Installation — Cabin Fuselage Structure (Sheet 3 of 3)

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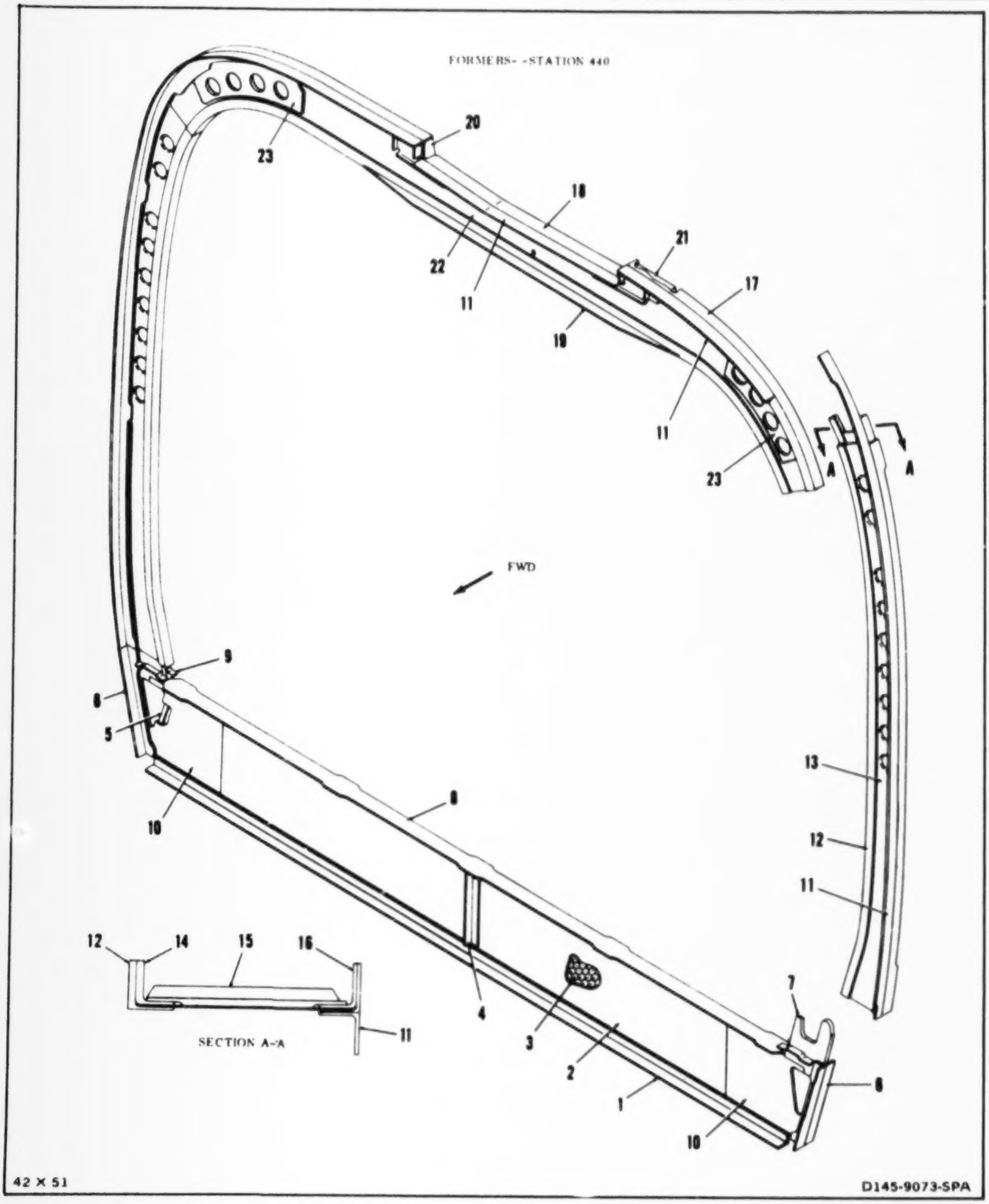
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMERS--STATION 440
20
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A
FWD
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11
SECTION A-A
42 X 51
D145-9073-SPA

Former Repairs — Aft Fuselage Structure
(Sheet 1 of 21)

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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS — STATION 440.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	VS90111	7075-T6	NOTE B		—
2	SKIN	0.020	7075-T6	NOTE B		—
3	CORE	0.255 3.0 3/8 20N 3003		NOTE B		—
4	ANGLE	ALCOA 62564	7075-T6	0.080	4130	NOTE E
5	ANGLE	AND10133-0601	7075-T6	0.071	4130	NOTE E
6	CAP	VS90110	7075-T6	0.090	4130	NOTE E
7	ATTACHMENT	0.250	7075-T6 BARE	NOTE B		—
8	CAP	VS90302	7075-T6	NOTE B		—
9	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE E
10	DOUBLER	0.050	7075-T6	NOTE B		—
11	CAP	VS90110	7075-T6	0.090	4130	NOTE E
12	CAP	VS90112	7075-T6	0.190	4130	NOTE E
13	WEB	0.040	2024-T3 CLAD	0.060	2024T3 CLAD	2-13
14	SPLICE	VS90112	7075-T6	0.190	4130	NOTE E
15	DOUBLER	ALCOA 44132	7075-T6	0.100	4130	NOTE E
16	SPLICE	VS90110	7075-T6	0.090	4130	NOTE E
17	CAP	ALCOA 13816	7075-T6	0.100	4130	NOTE E
18	CAP	VS90114	7075-T6	0.190	4130	NOTE E
19	CAP	VS90313	7075-T6	0.190	4130	NOTE E
20	ATTACHMENT		2014-T6 FORGING	NOTE C		—
21	ATTACHMENT		2014-T6 FORGING	NOTE D		—
22	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
23	DOUBLER	0.375	7075-T651	0.375	7075-T651	NOTE E

NOTES:
A All dimensions are in inches.
B Component of bonded assembly. Refer to TM 55-1500-204-25/1 for repair of sandwich honeycomb structures.
C Replace with new attachment 114S3830-5.
D Replace with new attachment 114S3829-1.
E TM 55-1500-204-25/1

Former Repairs — Aft Fuselage Structure
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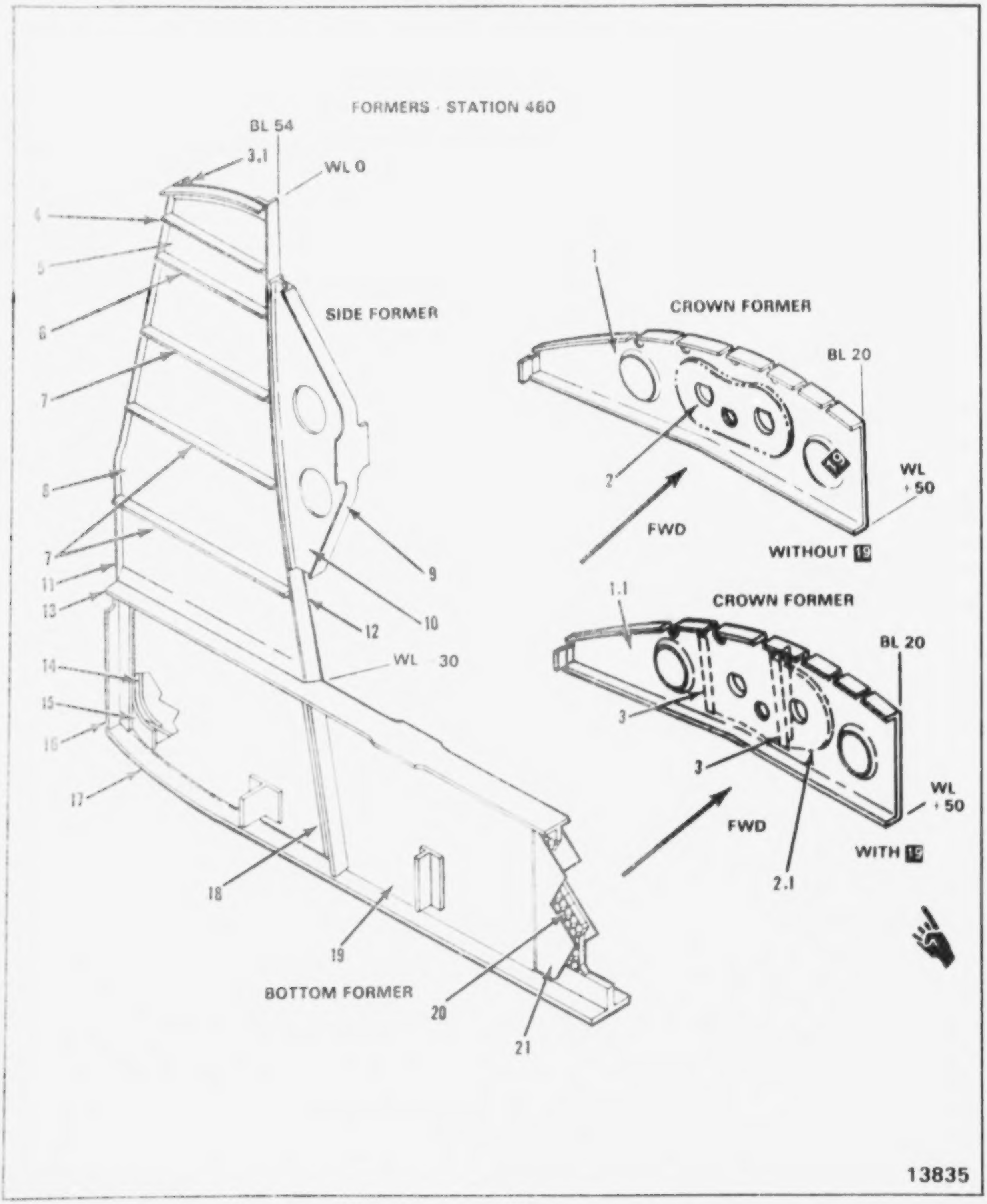
FORMERS - STATION 460
BL 54
3.1
WL 0
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SIDE FORMER
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WL -30
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19
BOTTOM FORMER
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CROWN FORMER
BL 20
2
19
WL
+50
FWD
WITHOUT 19
1.1
CROWN FORMER
BL 20
3
3
WL
+50
FWD
WITH 19
2.1
13835

Former Repairs — Aft Fuselage Structure
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS — STATION 460 0
CROWN FORMER

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0 032	2024-T4 CLAD	0 040	2024-T3 CLAD	2-13
1 1	WEB	0 032	2024-T3 CLAD	0 040	2024-T3 CLAD	2-13 NOTE D
2	DOUBLER	0 032	7075-T6 BARE	0 032	7075-T6 CLAD	NOTE C
2 1	DOUBLER	0 050	7075 T6 BARE	0 050	7075-T6 BARE	NOTE C, D
3	ANGLE	0 040	2024-T3 BARE	0 050	2024-T3 BARE	NOTE C, D

SIDE FORMERS

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
3 1	ANGLE	AND10133-1001	7075-T6	0 071	4130	NOTE C
4	STIFFENER	ALCOA 5401	7075-T6	0 071	4130	2-29
5	WEB	0 040	2024-T4 CLAD	0 050	2024-T3 CLAD	2-6
6	STIFFENER	ALCOA 22878	7075-T6	0 071	4130	2-29
7	STIFFENER	ALCOA 22477	7075-T6	0 050	4130	2-29
8	WEB	0 025	2024-T4 CLAD	0 032	2024-T3 CLAD	2-13
9	CAP	AND10136-1601	7075-T6	0 100	4130	NOTE C
10	WEB	0 032	2024-T4 CLAD	0 040	2024-T3 CLAD	2-13
11	CAP	AND10133-1001	7075-T6	0 063	4130	NOTE C
12	CAP	ALCOA 67576	7075-T6	0 160	4130	NOTE C

BOTTOM FORMER

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
13	CAP	VS90306	7075-T6	0 125	4130	NOTE C
14	DOUBLER	0 050	7075-T6 CLAD	0 050	7075-T6 CLAD	NOTE C
15	DOUBLER	0 032	7075-T6	0 040	7075-T6 CLAD	NOTE C
16	ANGLE	ALCOA 22892	7075-T6	0 100	4130	NOTE C
17	CAP	VS90303	7075-T6	0 125	4130	NOTE C
18	ANGLE	AND10133-1002	7075-T6	0 100	4130	NOTE C
19	DOUBLER	0 032	7075-T6	0 040	7075-T6 CLAD	NOTE C
20	CORE	0 255 3 0-3/8-20N-3003		NOTE C		NOTE C
21	SKIN	0 020	7075-T6	NOTE C		2-13

NOTES:
- A All dimensions are in inches
- B The LH formers are shown, the RH formers are similar in constructions. The materials listed are applicable to the LH and RH configurations
- C TM 55-1500-204-25/1
- D With ■

Former Repairs — Aft Fuselage Structure
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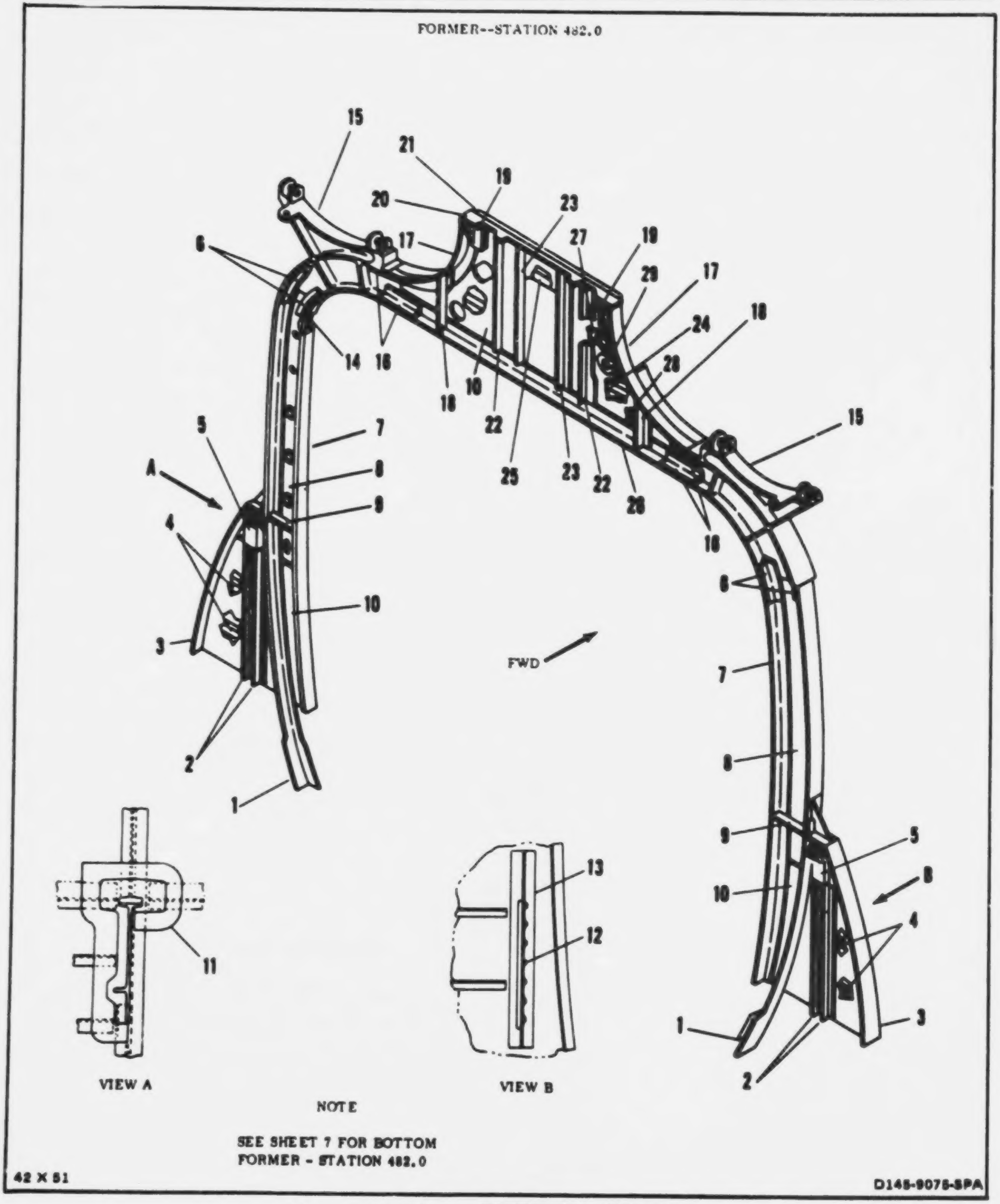
FORMER--STATION 482.0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FWD
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VIEW A
VIEW B

NOTE

SEE SHEET 7 FOR BOTTOM FORMER - STATION 482.0

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D145-9075-5PA

Former Repairs — Aft Fuselage Structure
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER — STATION 482 0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	ALCOA 51994 7075-T6	0 160 4130	NOTE F
2	STIFFENER	AND10136-2407 7075-T6	0 125 4130	2-29
3	CAP	REYNOLDS 16908 7075-T6	0 125 4130	NOTE F
4	STIFFENER	ALCOA 62564 7075-T6	0 090 4130	2-29
5	FITTING	2014-T6	NOTE B	—
6	SPLICE ANGLE	0 125 301 1/4H CRES	0 125 301 1/4H CRES	NOTE F
7	CAP	ALCOA 51994 7075-T6	0 160 4130	NOTE F
8	WEB	0 071 2024-T3 CLAD	0 080 2024-T3 CLAD	2-13
9	STIFFENER	ALCOA 59810 7075-T6	0 250 4130	2-29
10	WEB	0 063 7075-T6 BARE	0 080 7075-T6 CLAD	2-13
11	DOUBLER	0 040 7075-T6 BARE	0 050 7075-T6 CLAD	NOTE F
12	CAP	AND10134-1407 7075-T6	0 125 4130	NOTE F
13	TEE	AND10136-2407 7075-T6	0 125 4130	NOTE F
14	STRAP	0 125 301 3/4H CRES	0 125 301 3/4H CRES	NOTE F
15	FITTING	2014-T6	NOTE D	—
16	SPLICE ANGLE	AND10134-1604 7075-T6	0 160 4130	NOTE F
17	CAP	AND10134-2008 7075-T6	0 190 4130	NOTE F
18	STIFFENER	REYNOLDS 9097 7075-T6	0 375 4130	2-29
19	FITTING	2014-T6	NOTE E	NOTE F
20	CAP	ALCOA 16871 7075-T6	0 100 4130	NOTE F
21	ANGLE	0 032 2024-T4 CLAD	0 040 2024-T3 CLAD	NOTE F
22	STIFFENER	AND10134-1602 7075-T6	0 125 4130	2-29
23	STIFFENER	AND10134-1408 7075-T6	0 160 4130	2-29
24	STIFFENER	AND10134-2008 7075-T6	0 190 4130	2-29
25	STIFFENER	ALCOA 33811 7075-T6	0 125 4130	2-29
26	CAP	ALCOA 44132 7075-T6	0 190 4130	NOTE F
27	FLANGE DOUBLER	0 625 7075-T651	0 625 7075-T651	NOTE F
28	DOUBLER	0 100 7075-T6 BARE	0 100 7075-T6 CLAD	NOTE F
29	DOUBLER	0 050 7075-T6 BARE	0 050 7075-T6 CLAD	NOTE F

NOTES:
- A All dimensions are in inches
- B For damage other than minor, replace with a new fitting 114S3807-1 LH or -2 RH
- C Insulate dissimilar metals as directed in Task 2-351
- D For damage other than minor, replace with new fitting 114S3817-39 LH or -41 RH
- E For damage other than minor, replace with new fitting 114S3848-19 LH or -21 RH
- F TM 55-1500-204-25/1

Former Repairs — Aft Fuselage Structure
(Sheet 6 of 21)

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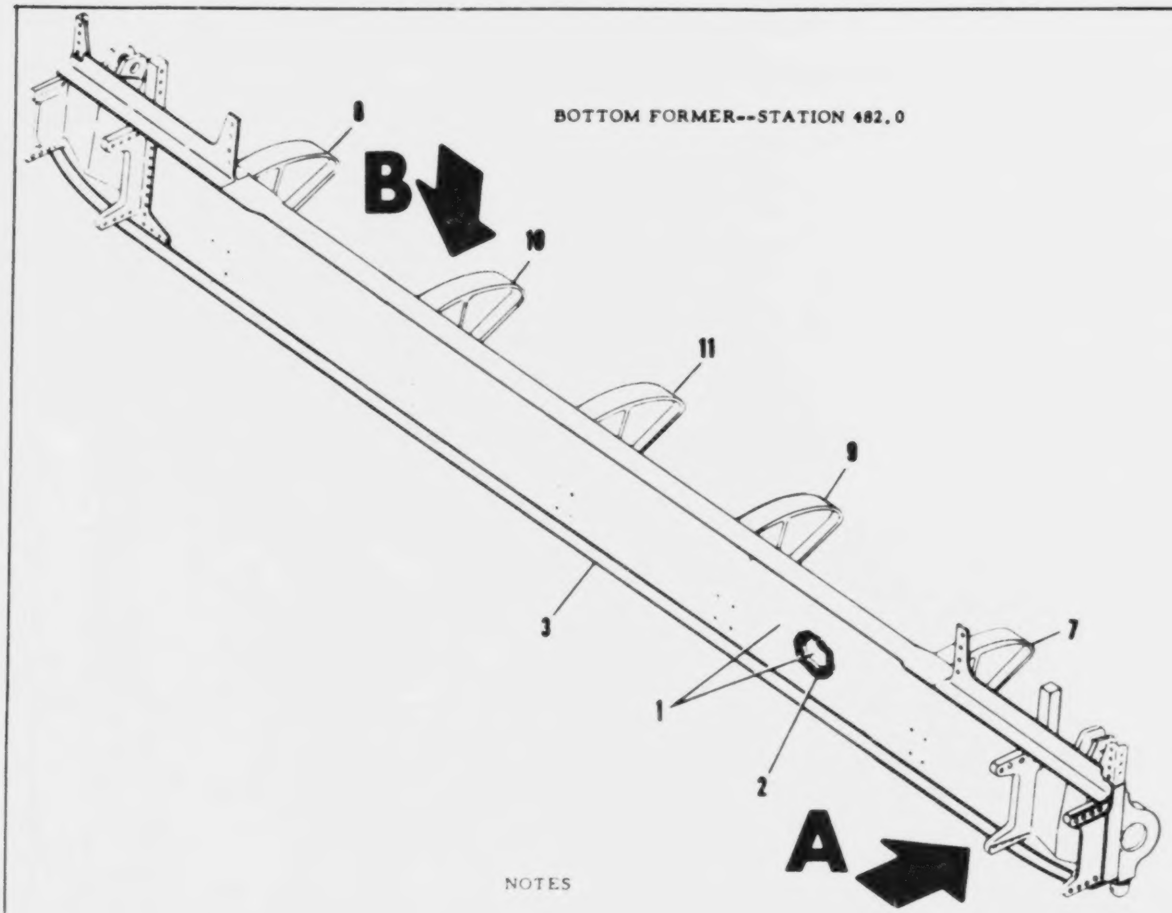
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18



NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. COMPONENT OF A BONDED ASSEMBLY, REFER TO TM 55-1500-204-25/1 FOR REPAIR OF SANDWICH HONEYCOMB STRUCTURES

C. FOR DAMAGE OTHER THAN MINOR REPLACE TRUNNION ASSEMBLY WITH A NEW PART 114S3849-1 LH OR -2 RH

D. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE ASSEMBLY WITH A NEW PART 114S3812-41 LH OR -42 RH

E. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE ASSEMBLY WITH A NEW PART 114S3812-22

F. FOR DAMAGE OTHER THAN MINOR REPLACE HINGE WITH A NEW PART 114S3812-13

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN	0.036 7075-T6	NOTE B.
2	CORE	3.0-3/8-20-N-3003	NOTE B.
3	CAP	VS90310 7075-T6	NOTE B.
4	CAP	VS90523 7075-T6	NOTE B.
5	BLOCK	0.400 7075-T6 BARE	NOTE B.
6	TRUNNION ASSY	2014-T6	NOTE C.
7	HINGE ASSY	AL ALY 7075-T73	AL ALY 7075-T73 NOTE D.
8	HINGE ASSY	AL ALY 7075-T73	AL ALY 7075-T73 NOTE D.
9	HINGE ASSY	AL ALY 7075-T73	NOTE E.
10	HINGE ASSY	AL ALY 7075-T73	NOTE E.
11	HINGE	AL ALY 7075-T73	NOTE F.

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D145-9076-SPA

Former Repairs — Aft Fuselage Structure
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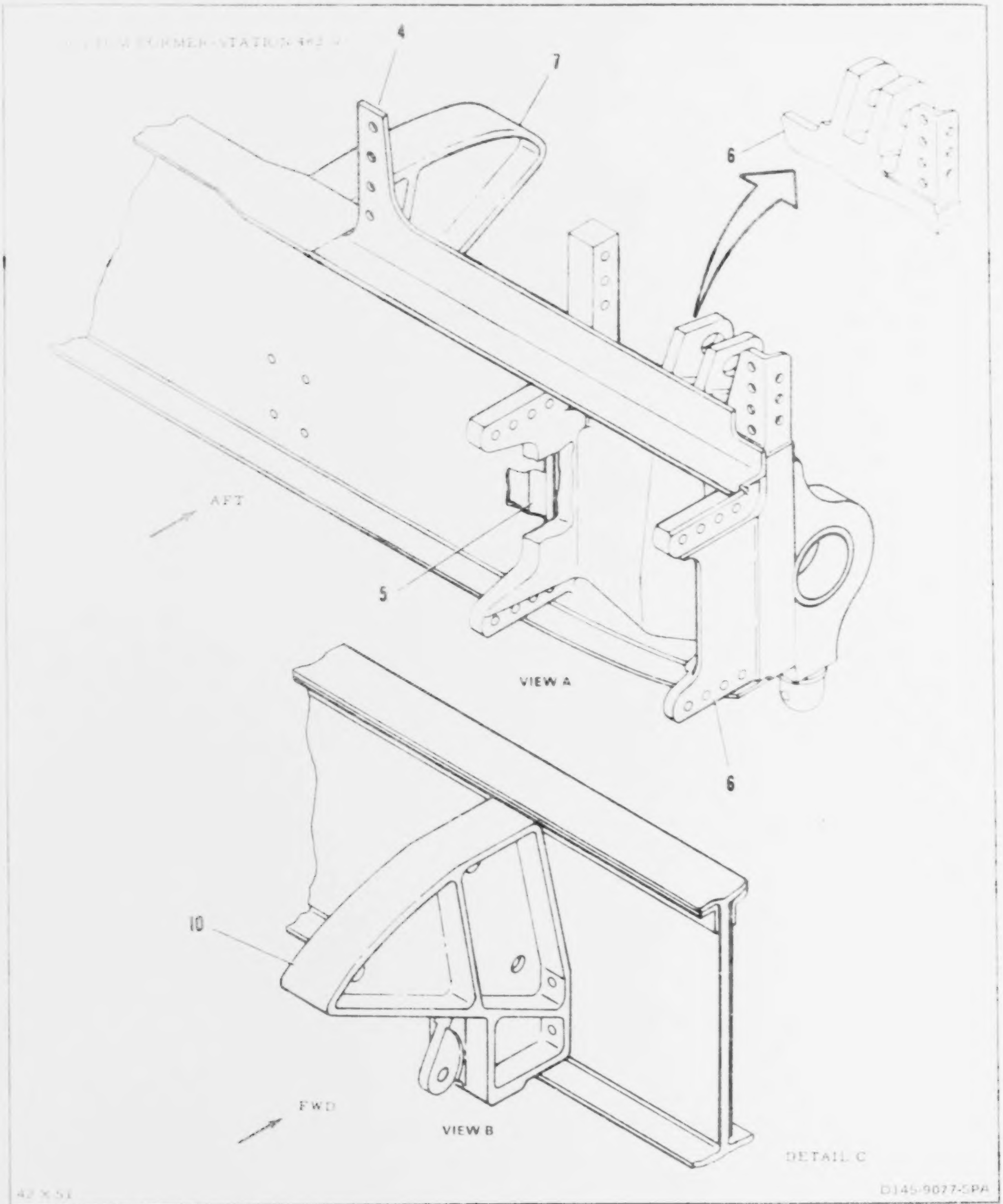
4
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AFT
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VIEW A
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FWD
VIEW B
DETAIL C
42 X 51
D145-9077-5PA

*Former Repairs — **Aft Fuselage Structure***
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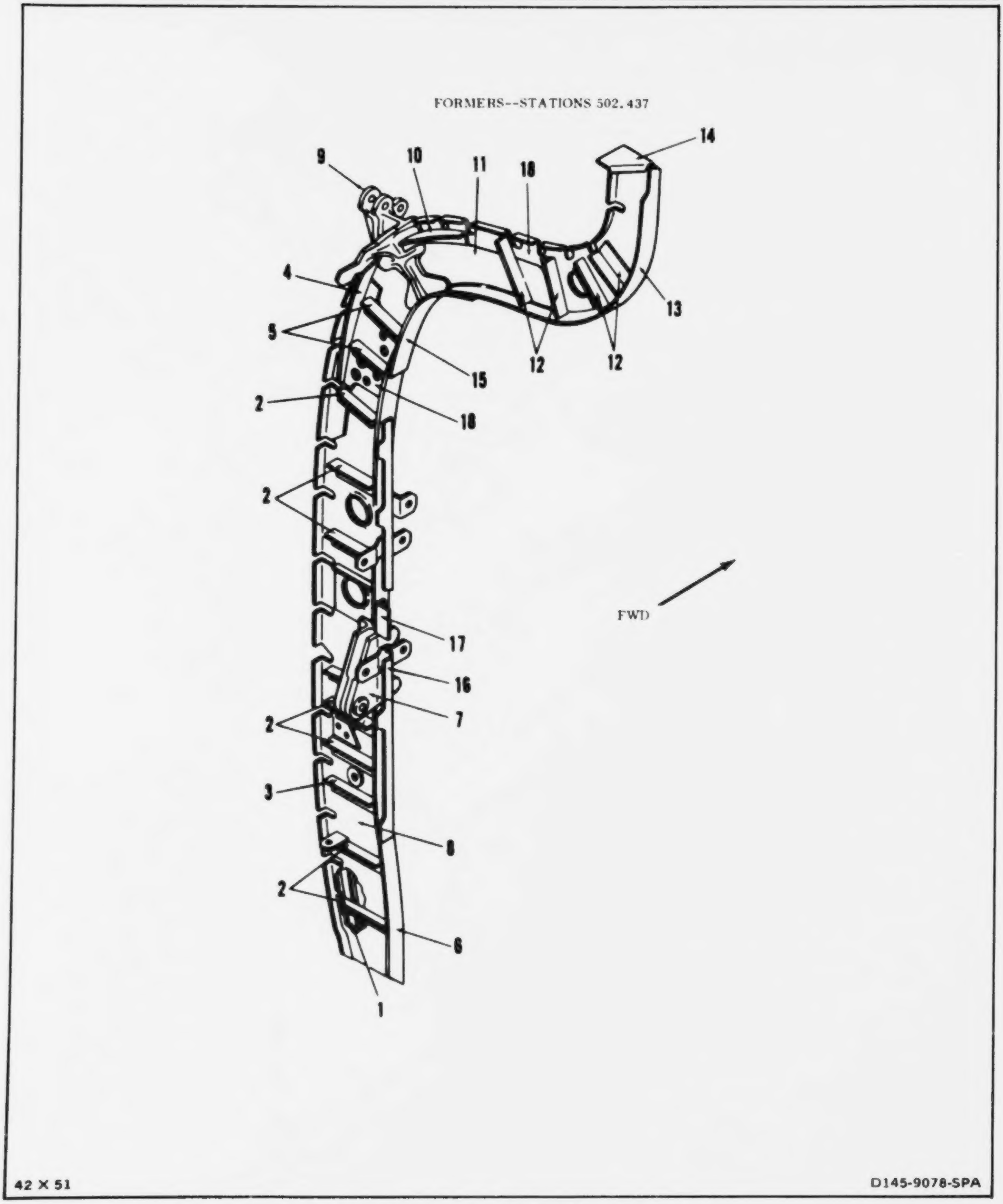
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMERS--STATIONS 502.437
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42 X 51
D145-9078-SPA

Former Repairs — Aft Fuselage Structure
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2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS — STATION 502 437

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	AND 10134-1408 7075-T6	0 160 4130	NOTE D
2	STIFFENER	ALCOA 22477 7075-T6	0 050 4130	2-29
3	STIFFENER	ALCOA 67580 7075-T6	0 063 4130	2-29
4	ANGLE	AND10134-1408 7075-T6	0 160 4130	NOTE D
5	STIFFENER	VS90112 7075-T6	0 190 4130	2-29
6	CAP	AND10136-2002 7075-T6	0 100 4130	NOTE D
7	FITTING	VS90530 7075-T6	NOTE B	—
8	WEB	0 032 7075-T6 CLAD	0 040 7075-T6 CLAD	2-13
9	FITTING	2014-T6	NOTE C	—
10	ANGLE	AND10134-1406 7075-T6	0 100 4130	NOTE D
11	WEB	0 050 2024-T3 CLAD	0 050 2024-T3 CLAD	2-13
12	STIFFENER	ALCOA 22477 7075-T6	0 050 4130	2-29
13	CAP	HARVEY 15152 7075-T6	0 071 4130	NOTE D
14	BRACKET	0 032 7075-T6 CLAD	0 040 7075-T6 CLAD	NOTE D
15	STRAP	0 100 301 1/4H CRES	0 100 301 1/4H CRES	NOTE D
16	ANGLE	0 032 2024-T4 CLAD	0 040 2024-T3 CLAD	NOTE D
17	CLIP	ALCOA 61971 7075-T6	0 050 4130	NOTE D
18	DOUBLER	0 032 2024-T3 CLAD	0 032 2024-T3 CLAD	NOTE D

NOTES:
A All dimensions are in inches
B For damage other than minor, replace with a new fitting 114S3816-1 LH or -2 RH
C For damage other than minor, replace with a new fitting 114S3819-39 LH or -41 RH
D TM 55-1500-204-25/1

Former Repairs — Aft Fuselage Structure
(Sheet 10 of 21)

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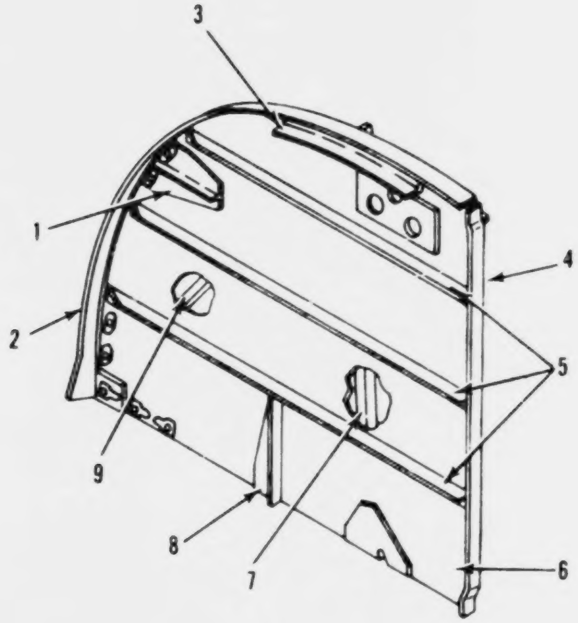
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS—STATION 520.0



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STIFFENER	AND10136-3001 7075-T6	0.125 4130	2-29
2	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C.
3	ANGLE	0.040 7075-T6 BARE	0.040 4130	NOTE C.
4	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C.
5	STIFFENER	ALCOA 22526 7075-T6	0.063 4130	2-29
6	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
7	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C.
8	STIFFENER	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-29
9	STIFFENER	0.050 7075-T6 BARE	0.050 7075-T6 CLAD	2-29

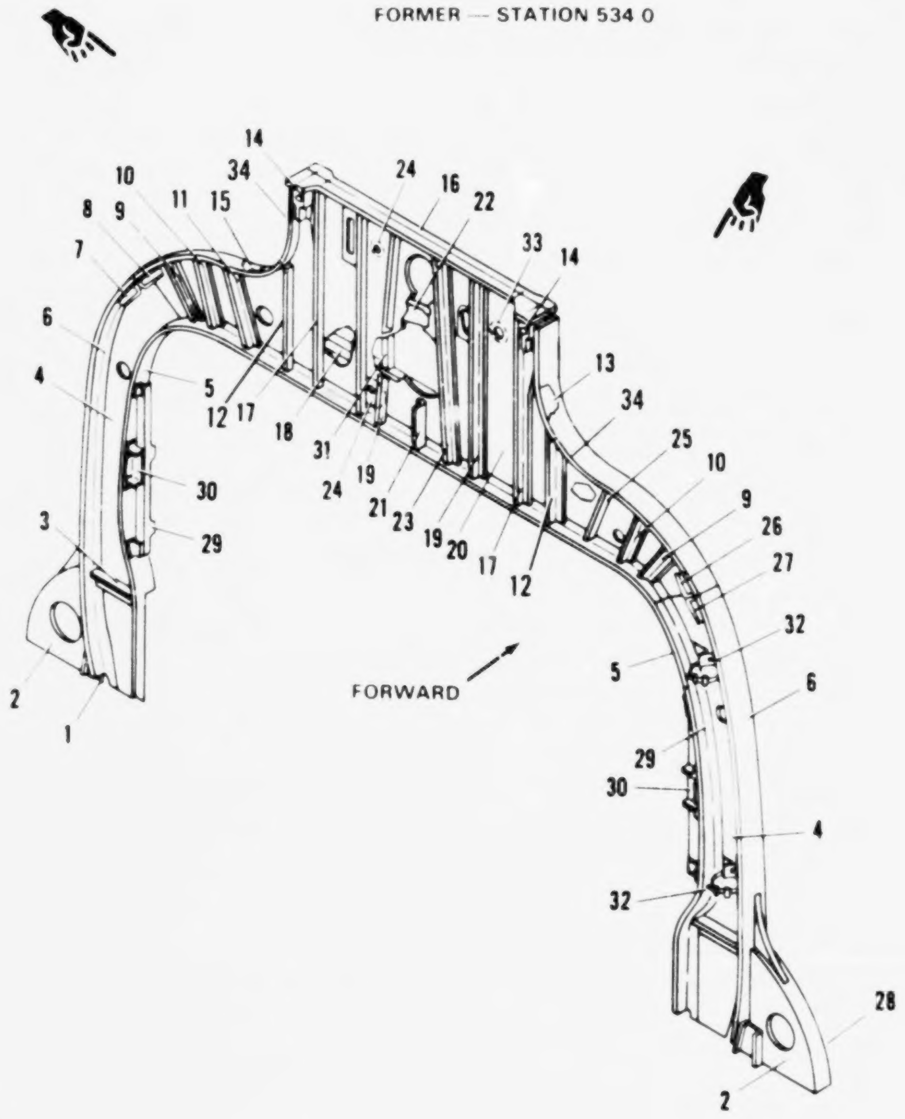
NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. THE LH FORMER IS SHOWN. THE RH FORMER IS SIMILAR IN CONSTRUCTION. THE ORIGINAL AND REPAIR MATERIALS LISTED ARE APPLICABLE TO LH AND RH CONFIGURATIONS
C. TM 55-1500-204-25/1

1462

Former Repairs — Aft Fuselage Structure
(Sheet 11 of 21)

GO TO NEXT PAGE


FORMER — STATION 534 0
14
34
10
24
16
22
8
9
11
15
33
14
7
6
4
5
12
17
18
13
34
31
25
10
24
19
21
23
19
20
17
12
9
26
27
30
3
29
32
5
6
2
1
FORWARD
29
30
4
32
28
2

9450

Former Repairs — Aft Fuselage Structure
(Sheet 12 of 21)

GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS — STATION 534.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	REINFORCEMENT	0.080 7075-T6 CLAD	0.090 7075-T6 CLAD	NOTE E
2	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
3	STIFFENER	AND10133-0601 7075-T6	0.071 4130	2-29
4	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
5	CAP	ALCOA 43774 7075-T6	0.100 4130	NOTE E
6	CAP	ALCOA 43774 7075-T6	0.100 4130	NOTE E
7	FITTING	2014-T6	NOTE B	—
8	FITTING	2014-T6	NOTE C	—
9	STIFFENER	AND10136-1401 7075-T6	0.071 4130	2-29
10	STIFFENER	AND10136-1401 7075-T6	0.071 4130	2-29
11	ANGLE	ALCOA	0.100 4130	NOTE E
12	ANGLE	AND10134-1006 7075-T6	0.100 4130	NOTE E
13	CAP	ALCOA 43774 7075-T6	0.100 4130	NOTE E
14	FITTING	2014-T6	NOTE D	—
15	CAP	ALCOA 43774 7075-T6	0.100 4130	NOTE E
16	CAP	ALCOA 33495 7075-T6	0.080 4130	NOTE E
17	STIFFENER	ALCOA 66017 7075-T6	0.100 4130	2-29
18	STIFFENER	ALCOA 9484 7075-T6	0.080 4130	2-29
19	STIFFENER	ALCOA 9484 7075-T6	0.080 4130	2-29
20	WEB	0.050 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
21	STIFFENER	ALCOA 9484 7075-T6	0.080 4130	2-29
22	STIFFENER	0.063 7075-T6 BARE	0.080 4130	2-29
23	CAP	VS90312 7075-T6	0.100 4130	NOTE E
24	DOUBLER	0.071 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE E
25	ANGLE	AND10134-1006 7075-T6	0.100 4130	NOTE E
26	FITTING	2014-T6	NOTE C	—
27	FITTING	2014-T6	NOTE B	—
28	CAP	ALCOA 22477 7075-T6	0.050 4130	NOTE E
29	ANGLE	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	NOTE E
30	BRACKET	0.050 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE E
31	ANGLE	ALCOA 52735 7075-T6	4130	NOTE E
32	BRACKET	0.050 301 CRES	0.050 301 CRES	NOTE E
33	DOUBLER	0.071 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE E
34	CAPSTRIP	0.050 CRES SHEET	0.050 CRES SHEET	

NOTES:

A All dimensions are in inches

B Replace with new fitting 114S3825-13 and -17 (aft and fwd LH respectively) or -15 and -19 (aft and fwd RH respectively)

C Replace with new fitting 114S3825-21 and -23 (aft and fwd LH respectively) or -22 and -24 (aft and fwd RH respectively)

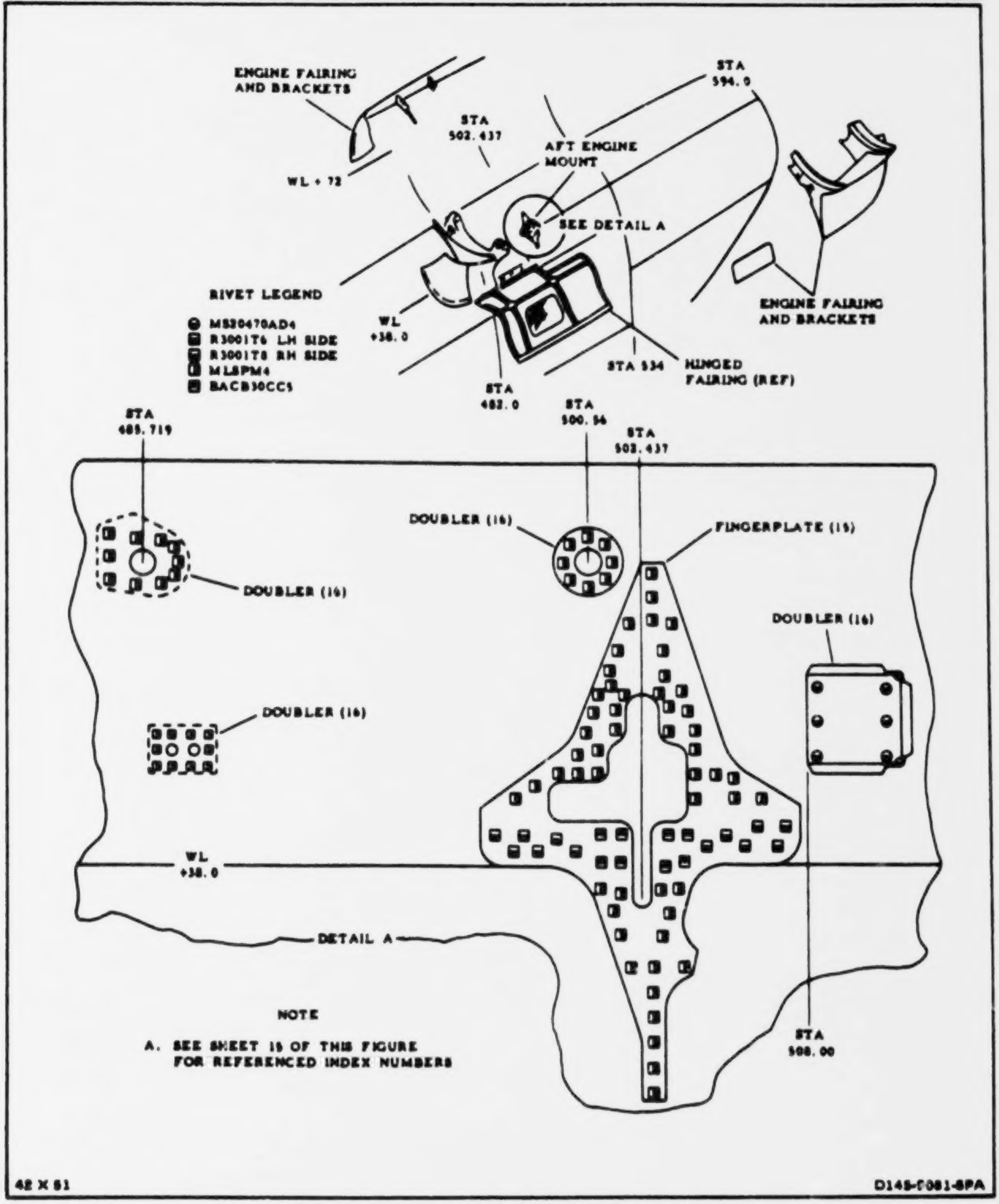
D Replace with new fitting 114S3848-11 and -17 (aft and fwd LH respectively) or -13 and -15 (aft and fwd RH respectively)

E TM 55-1500-204-25/1

Former Repairs — Aft Fuselage Structure
(Sheet 13 of 21)

GO TO NEXT PAGE

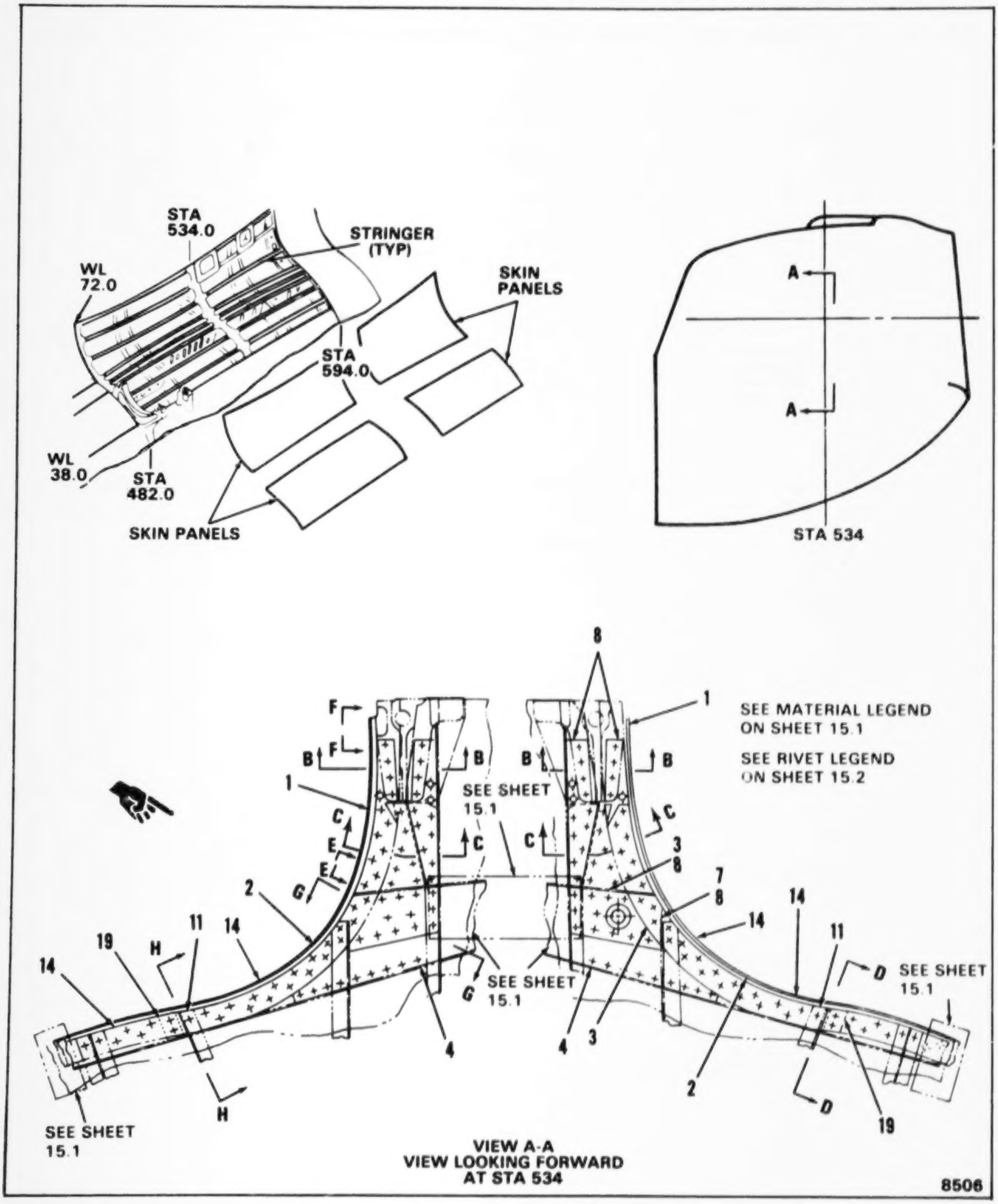
2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


ENGINE FAIRING AND BRACKETS
STA 594.0
STA 502.437
AFT ENGINE MOUNT
WL + 72
SEE DETAIL A
RIVET LEGEND
● MS20470AD4
▣ R3001T6 LH SIDE
▣ R3001T8 RH SIDE
▯ MLSPM4
▣ BACB30CC5
WL +38.0
STA 482.0
STA 534
HINGED FAIRING (REF)
ENGINE FAIRING AND BRACKETS
STA 485.719
STA 500.56
STA 502.437
DOUBLER (16)
FINGERPLATE (15)
DOUBLER (16)
DOUBLER (16)
DOUBLER (16)
WL +38.0
DETAIL A
NOTE
A. SEE SHEET 15 OF THIS FIGURE FOR REFERENCED INDEX NUMBERS
STA 508.00
42 X 51
D145-F081-8PA

Former Repairs — Aft Fuselage Structure
(Sheet 14 of 21)

GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


STA 534.0
STRINGER (TYP)
WL 72.0
SKIN PANELS
STA 594.0
WL 38.0
STA 482.0
SKIN PANELS
A
A
STA 534
8
F
F
B
B
B
B
1
SEE MATERIAL LEGEND ON SHEET 15.1
SEE RIVET LEGEND ON SHEET 15.2
SEE SHEET 15.1
1
C
C
C
C
E
E
3
8
7
8
2
G
14
14
11
14
19
H
11
14
D
SEE SHEET 15.1
SEE SHEET 15.1
G
4
4
3
2
D
19
SEE SHEET 15.1
H
VIEW A-A
VIEW LOOKING FORWARD
AT STA 534
8506

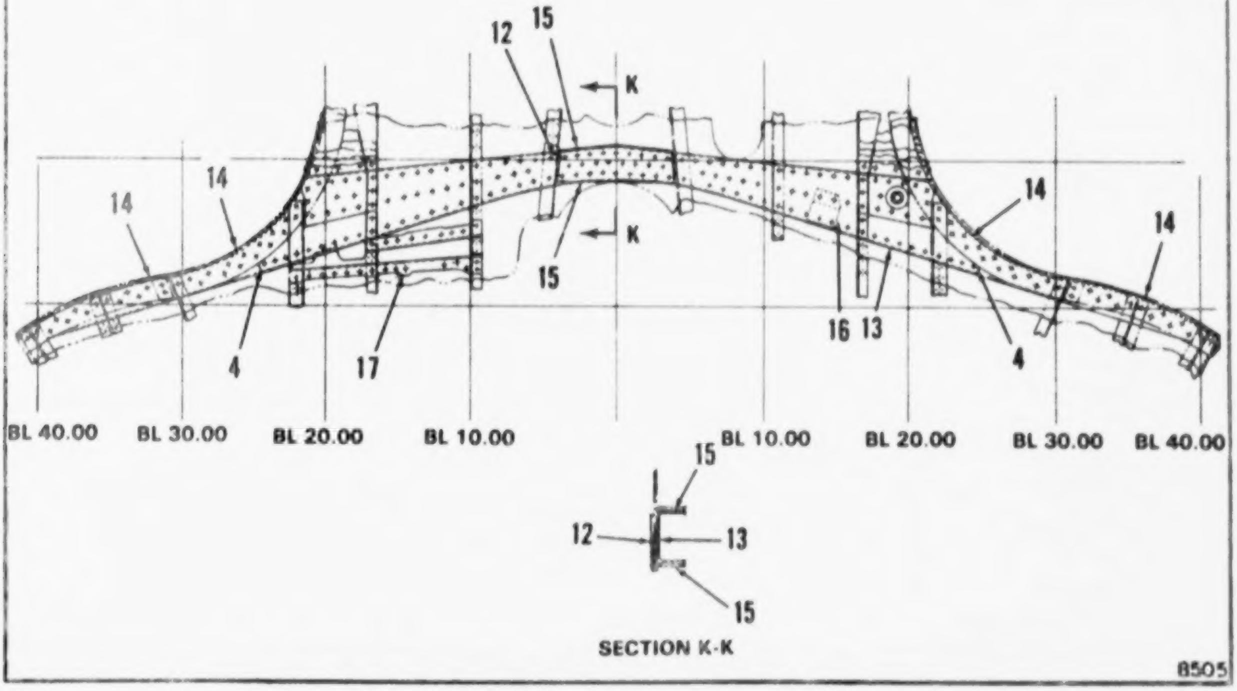
Former Repairs — Aft Fuselage Structure
(Sheet 15 of 21)

GO TO NEXT PAGE

FORMERS — STATION 534.0
(SHEETS 15.1 THROUGH 15.8)

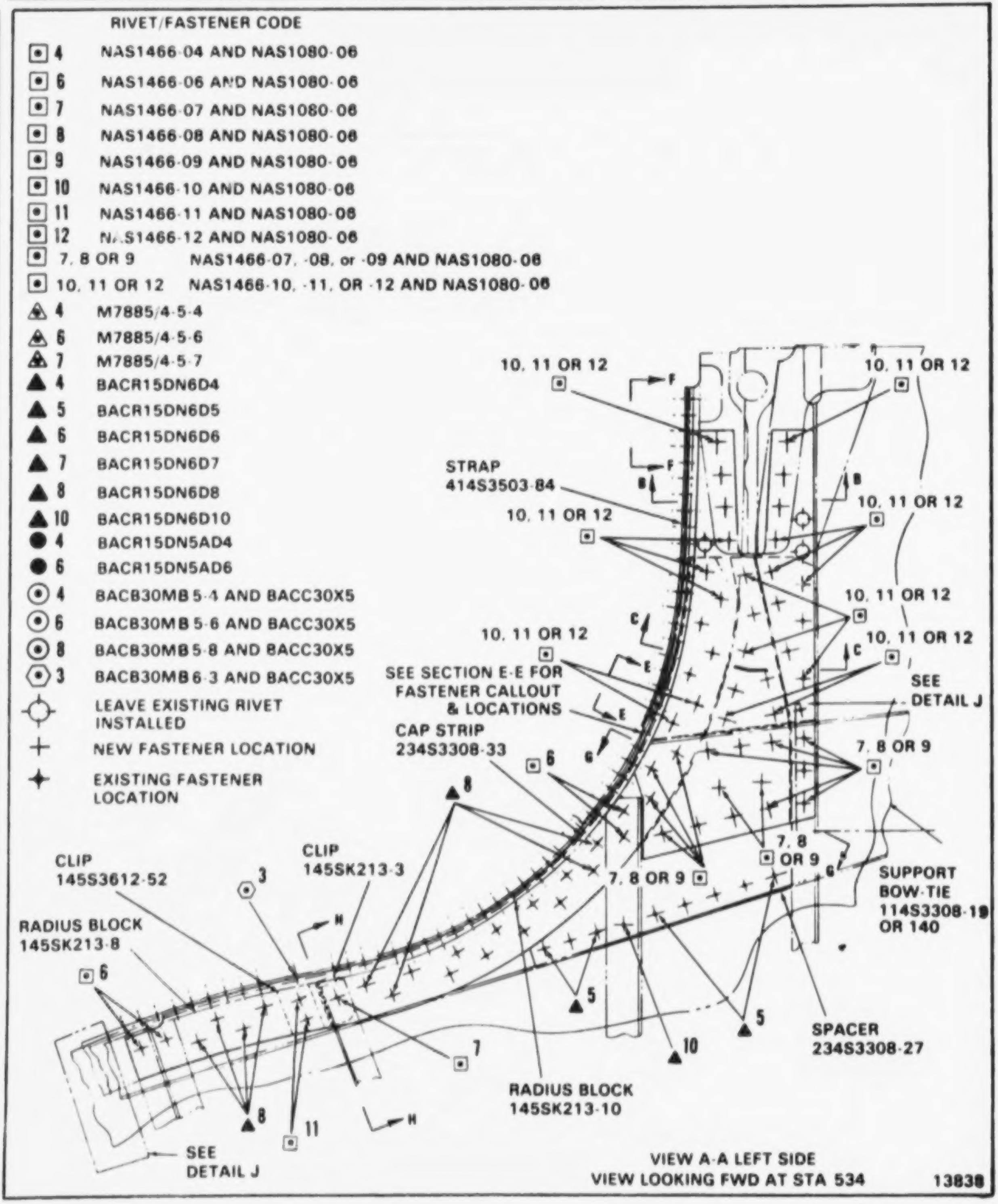
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR FIG.
1	STRAP	0.080 301 CRES	NOTE A	
2	CAP STRIP	0.050 CRES 17-7PH	NOTE A	
3	FILLER	0.050 2024-T3 CLAD	NOTE A	
4	SPACER	0.050 7075-T6	NOTE A	
6	FILLER	0.090 2024-T3 CLAD	NOTE A	
7	FILLER	0.050 2024-T3 CLAD	NOTE A	
8	REINFORCING PLATE	0.080 301 CRES 1/4 H	NOTE A	
11	CLIP	0.032 2024-T3 CLAD	NOTES A & B	
12	SPLICE	0.080 7075-T6	NOTES A & B	
13	SUPPORT	0.063 7075-T6	NOTE A	
14	RADIUS BLOCK	0.125 2024-T3	NOTES A & B	
15	STRAP	0.080 7075-T6	NOTES A & B	
16	BRACKET	0.040 2024-0 CLAD HT TR T4	NOTE A	
17	SUPPORT BRACKET	0.050 2024-0 CLAD HT TR T4	NOTE A	
18	WEB	0.032 2024-13 CLAD	.040 2024-T3	
19	CLIP	ALCOA 31823 7075-T6	NOTE A	

NOTES: A. Fabricate new part from same material as original
B. Effective only for Mfg. Serial No. M3004 thru M3041.
(81-23381 thru 81-23389)
(82-23762 thru 82-23780)
(83-24102 thru 83-24111)


12
15
K
14
14
14
K
15
4
17
16
13
14
4
14
BL 40.00
BL 30.00
BL 20.00
BL 10.00
BL 10.00
BL 20.00
BL 30.00
BL 40.00
15
12
13
15
SECTION K-K
8505

Former Repairs — Aft Fuselage Structure
(Sheet 15.1 of 21)

GO TO NEXT PAGE



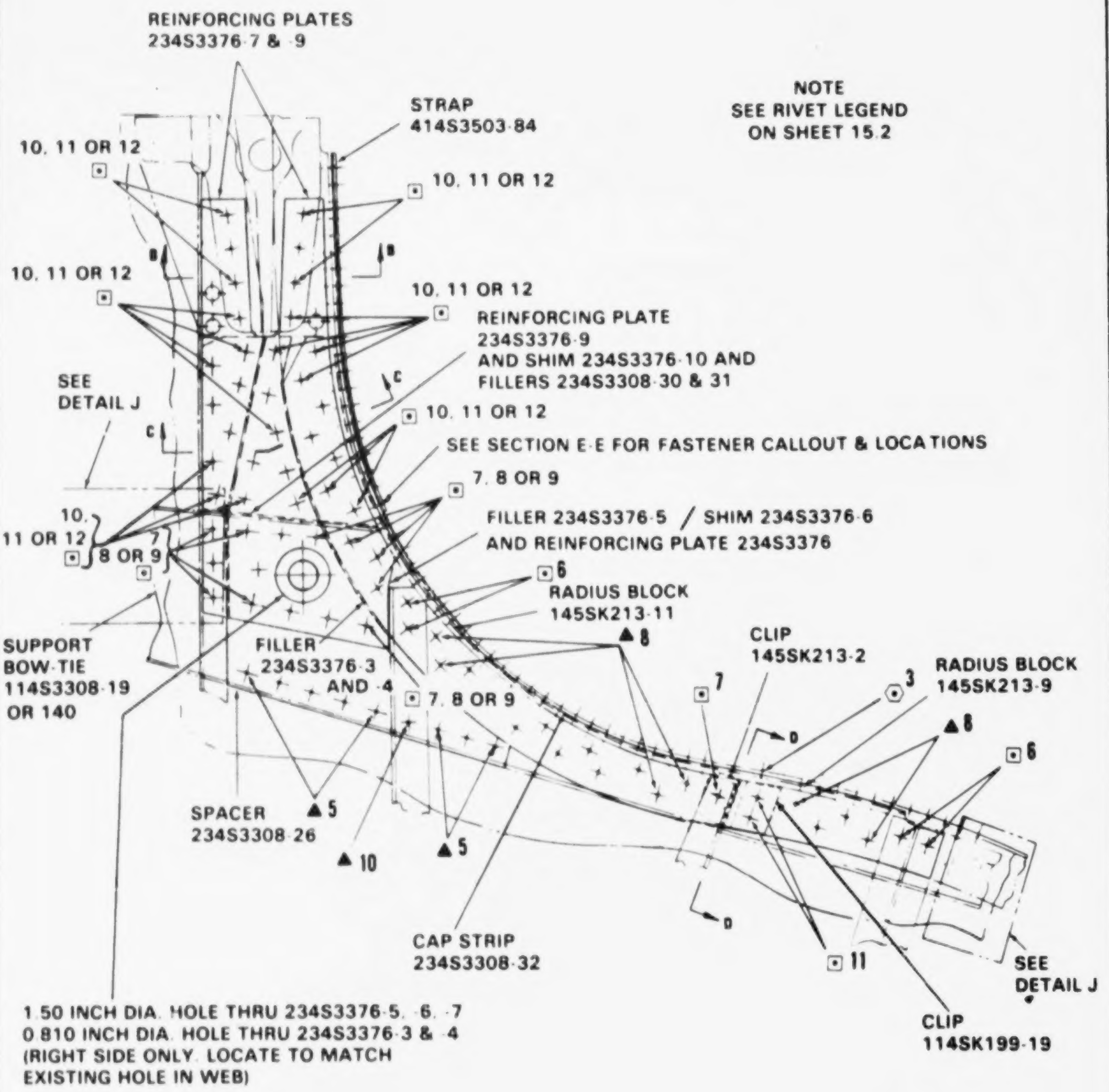
RIVET/FASTENER CODE

⊡ 4	NAS1466-04 AND NAS1080-06
⊡ 6	NAS1466-06 AND NAS1080-06
⊡ 7	NAS1466-07 AND NAS1080-06
⊡ 8	NAS1466-08 AND NAS1080-06
⊡ 9	NAS1466-09 AND NAS1080-06
⊡ 10	NAS1466-10 AND NAS1080-06
⊡ 11	NAS1466-11 AND NAS1080-06
⊡ 12	NAS1466-12 AND NAS1080-06
⊡ 7, 8 OR 9	NAS1466-07, -08, or -09 AND NAS1080-06
⊡ 10, 11 OR 12	NAS1466-10, -11, OR -12 AND NAS1080-06
◬ 4	M7885/4-5-4
◬ 6	M7885/4-5-6
◬ 7	M7885/4-5-7
▲ 4	BACR15DN6D4
▲ 5	BACR15DN6D5
▲ 6	BACR15DN6D6
▲ 7	BACR15DN6D7
▲ 8	BACR15DN6D8
▲ 10	BACR15DN6D10
● 4	BACR15DN5AD4
● 6	BACR15DN5AD6
⊙ 4	BACB30MB5-4 AND BACC30X5
⊙ 6	BACB30MB5-6 AND BACC30X5
◉ 8	BACB30MB5-8 AND BACC30X5
⬡ 3	BACB30MB6-3 AND BACC30X5
⌖	LEAVE EXISTING RIVET INSTALLED
+	NEW FASTENER LOCATION
✦	EXISTING FASTENER LOCATION

10, 11 OR 12
F
10, 11 OR 12
F
STRAP
414S3503-84
B
B
10, 11 OR 12
10, 11 OR 12
10, 11 OR 12
C
10, 11 OR 12
10, 11 OR 12
C
E
SEE SECTION E-E FOR FASTENER CALLOUT & LOCATIONS
E
SEE DETAIL J
CAP STRIP
234S3308-33
6
G
7, 8 OR 9
8
7, 8 OR 9
7, 8 OR 9
G
CLIP
145S3612-52
3
CLIP
145SK213-3
H
SUPPORT BOW-TIE
114S3308-19 OR 140
RADIUS BLOCK
145SK213-8
6
5
5
10
7
SPACER
234S3308-27
RADIUS BLOCK
145SK213-10
8
11
H
SEE DETAIL J
VIEW A-A LEFT SIDE
VIEW LOOKING FWD AT STA 534
13838

Former Repairs — Aft Fuselage Structure
(Sheet 15.2 of 21)

GO TO NEXT PAGE


REINFORCING PLATES
234S3376-7 & -9
STRAP
414S3503-84
NOTE
SEE RIVET LEGEND
ON SHEET 15.2
10, 11 OR 12
10, 11 OR 12
B
B
10, 11 OR 12
10, 11 OR 12
REINFORCING PLATE
234S3376-9
AND SHIM 234S3376-10 AND
FILLERS 234S3308-30 & 31
SEE
DETAIL J
C
C
10, 11 OR 12
SEE SECTION E-E FOR FASTENER CALLOUT & LOCATIONS
7, 8 OR 9
10,
11 OR 12
7
8 OR 9
FILLER 234S3376-5 / SHIM 234S3376-6
AND REINFORCING PLATE 234S3376
6
RADIUS BLOCK
145SK213-11
SUPPORT
BOW-TIE
114S3308-19
OR 140
FILLER
234S3376-3
AND -4
8
CLIP
145SK213-2
7
3
RADIUS BLOCK
145SK213-9
7, 8 OR 9
D
8
6
SPACER
234S3308-26
5
10
5
D
CAP STRIP
234S3308-32
11
SEE
DETAIL J
CLIP
114SK199-19
1.50 INCH DIA. HOLE THRU 234S3376-5, -6, -7
0.810 INCH DIA. HOLE THRU 234S3376-3 & -4
(RIGHT SIDE ONLY. LOCATE TO MATCH
EXISTING HOLE IN WEB)

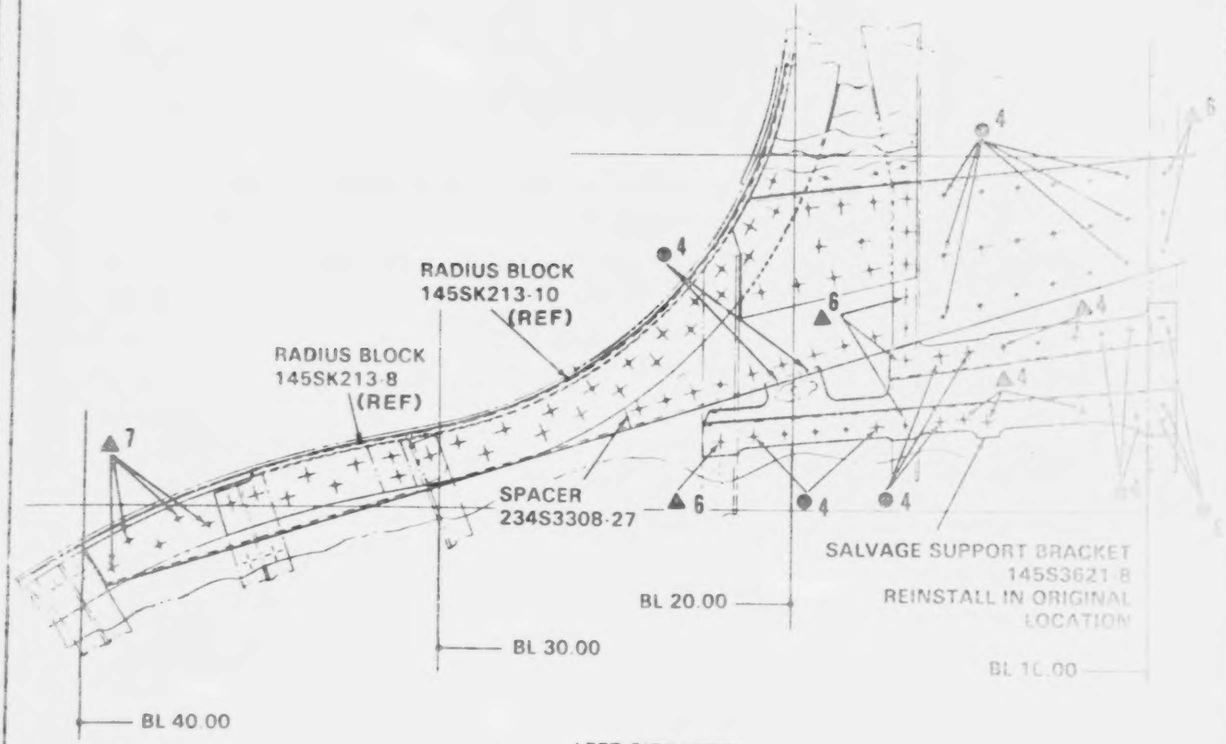
VIEW A-A RIGHT SIDE
VIEW LOOKING FWD AT STA 534

13839

Former Repairs — Aft Fuselage Structure
(Sheet 15.3 of 21)

GO TO NEXT PAGE

NOTE
SEE RIVET LEGEND
ON SHEET 15.2


RADIUS BLOCK
145SK213-10
(REF)
RADIUS BLOCK
145SK213-8
(REF)
7
4
6
4
4
6
4
4
4
6
SPACER
234S3308-27
SALVAGE SUPPORT BRACKET
145S3621-8
REINSTALL IN ORIGINAL
LOCATION
BL 20.00
BL 30.00
BL 10.00
BL 40.00

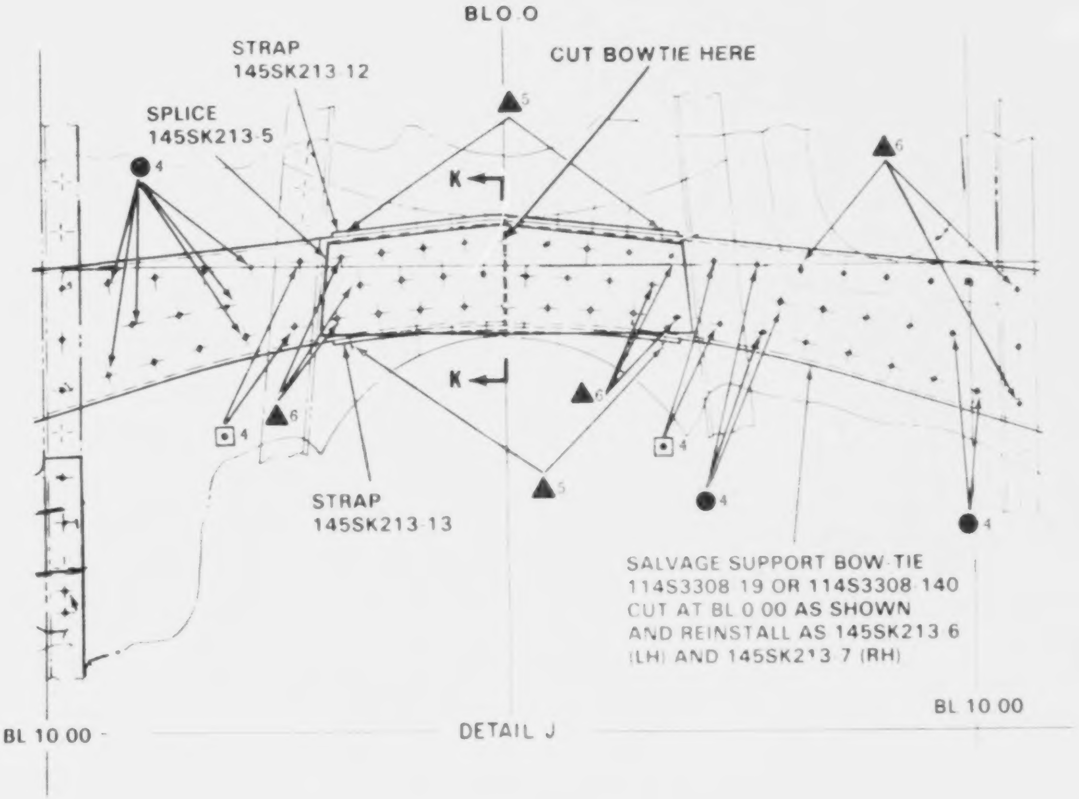
LEFT SIDE VIEW
LOOKING FORWARD AT STA 534

13840

Former Repairs — Aft Fuselage Structure
(Sheet 15.4 of 21)

GO TO NEXT PAGE

SEE SHEET 15.2 FOR RIVET LEGEND


BL 0.0
STRAP
145SK213-12
CUT BOWTIE HERE
SPLICE
145SK213-5
4
5
6
K
K
6
4
6
4
5
4
4
STRAP
145SK213-13
SALVAGE SUPPORT BOW-TIE
114S3308-19 OR 114S3308-140
CUT AT BL 0.00 AS SHOWN
AND REINSTALL AS 145SK213-6
(LH) AND 145SK213-7 (RH)
BL 10.00
BL 10.00
DETAIL J

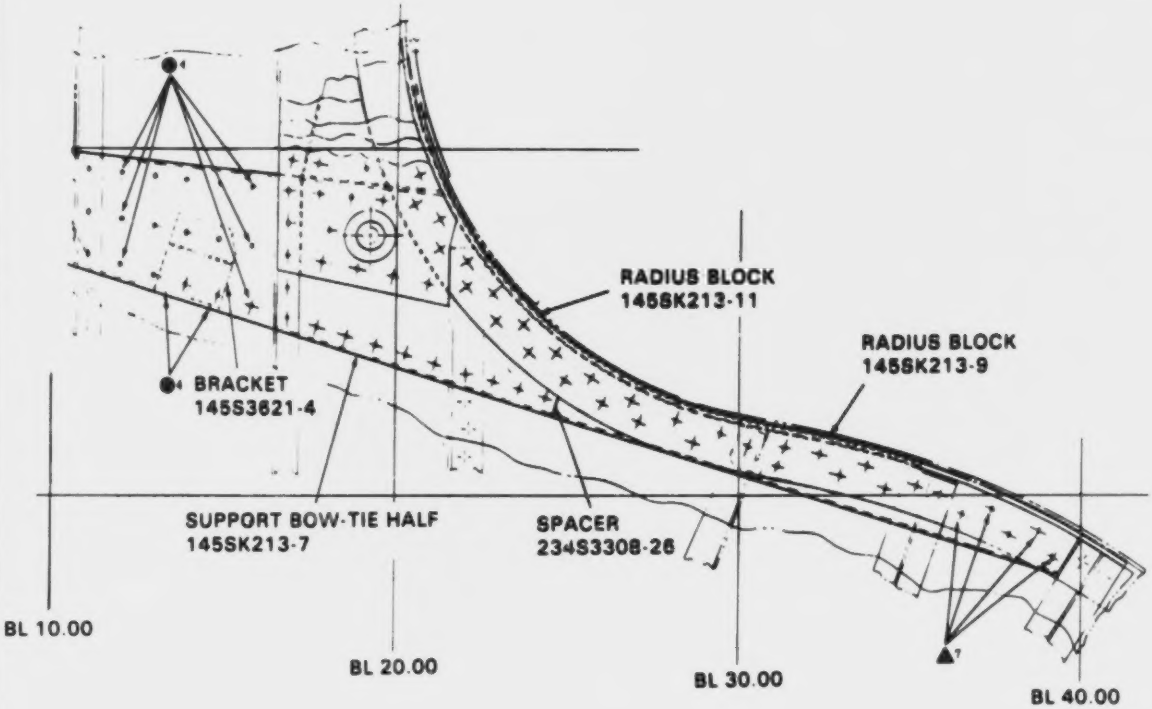
CENTER VIEW
LOOKING FORWARD AT
STA 534

13841

Former Repairs — Aft Fuselage Structure
(Sheet 15.5 of 21)

GO TO NEXT PAGE

SEE SHEET 15.2 FOR RIVET LEGEND

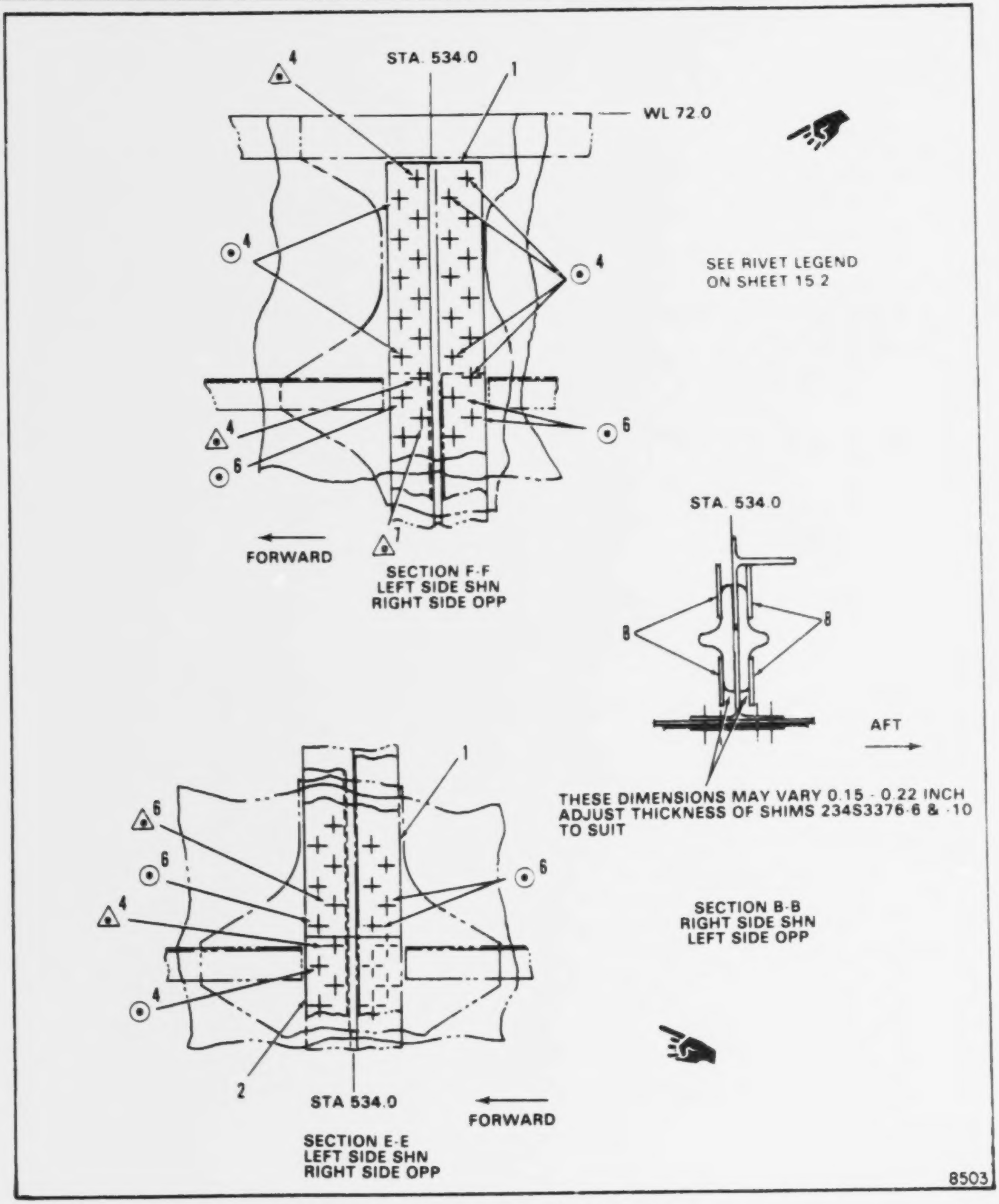

RADIUS BLOCK
145SK213-11
RADIUS BLOCK
145SK213-9
BRACKET
145S3621-4
SUPPORT BOW-TIE HALF
145SK213-7
SPACER
234S3308-26
BL 10.00
BL 20.00
BL 30.00
BL 40.00

RIGHT SIDE VIEW
LOOKING FORWARD AT STA
534.0

13842

Former Repairs — Aft Fuselage Structure
(Sheet 15.6 of 21)

GO TO NEXT PAGE


STA. 534.0
1
4
WL 72.0
4
4
4
6
6
4
6
7
FORWARD
STA. 534.0
8
8
AFT
1
6
6
6
4
4
2
STA 534.0
FORWARD
8503

SEE RIVET LEGEND ON SHEET 15.2

SECTION F-F
LEFT SIDE SHN
RIGHT SIDE OPP

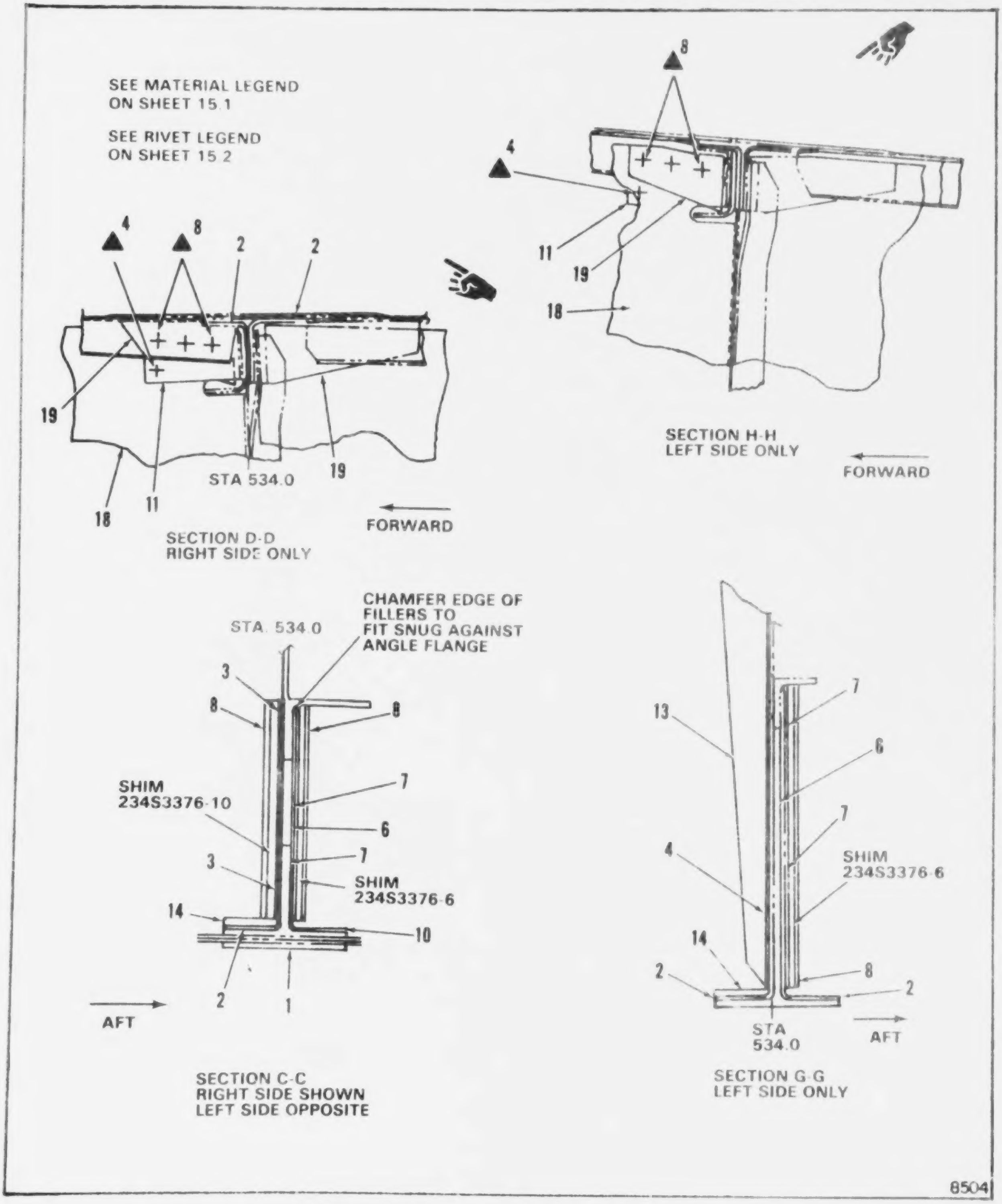
THESE DIMENSIONS MAY VARY 0.15 - 0.22 INCH
ADJUST THICKNESS OF SHIMS 234S3376-6 & -10
TO SUIT

SECTION B-B
RIGHT SIDE SHN
LEFT SIDE OPP

SECTION E-E
LEFT SIDE SHN
RIGHT SIDE OPP

Former Repairs — Aft Fuselage Structure
(Sheet 15.7 of 21)

GO TO NEXT PAGE



SEE MATERIAL LEGEND ON SHEET 15.1

SEE RIVET LEGEND ON SHEET 15.2

CHAMFER EDGE OF FILLERS TO FIT SNUG AGAINST ANGLE FLANGE

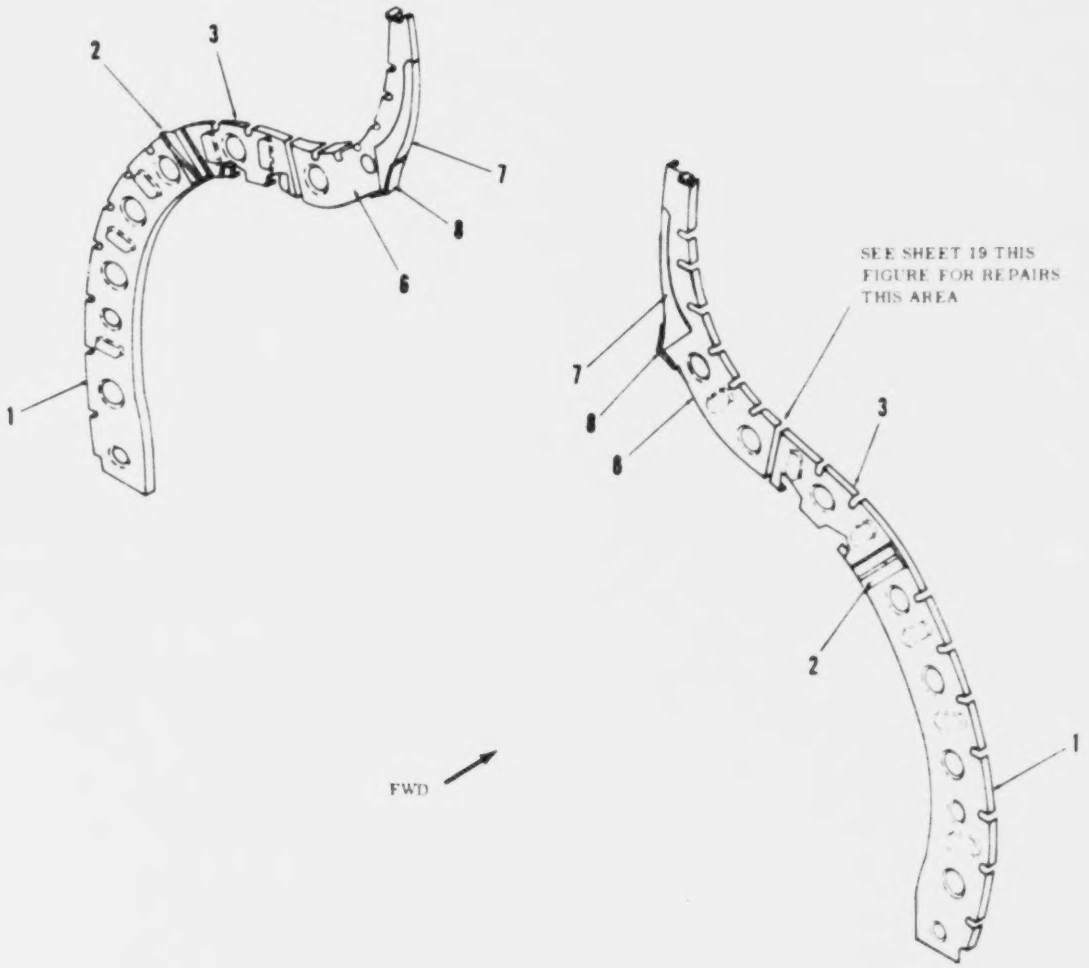
4
8
2
2
19
19
18
11
STA 534.0
FORWARD
SECTION D-D
RIGHT SIDE ONLY
8
4
11
19
18
SECTION H-H
LEFT SIDE ONLY
FORWARD
STA. 534.0
3
8
8
7
SHIM
234S3376-10
6
3
7
SHIM
234S3376-6
14
10
2
1
AFT
SECTION C-C
RIGHT SIDE SHOWN
LEFT SIDE OPPOSITE
13
7
6
7
4
SHIM
234S3376-6
14
8
2
2
STA
534.0
AFT
SECTION G-G
LEFT SIDE ONLY
8504

Former Repairs — Aft Fuselage Structure
(Sheet 15.8 of 21)

GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMER- -STATIONS 575.5



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	WEB	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
2	TEE	AND 10136-1605 7075-T6	0.100 4130
3	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
4	DOUBLER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
5	ANGLE	0.032 2024-T6 CLAD	0.040 2024-T6 CLAD
6	FORMER	0.040 2024-0 BARE	0.040 2024-0 CLAD
7	CHANNEL	0.063 2024-0 BARE	0.040 2024-0 CLAD
8	STRAP	0.050 2024-T3 BARE	0.050 2024-T3 CLAD

NOTE

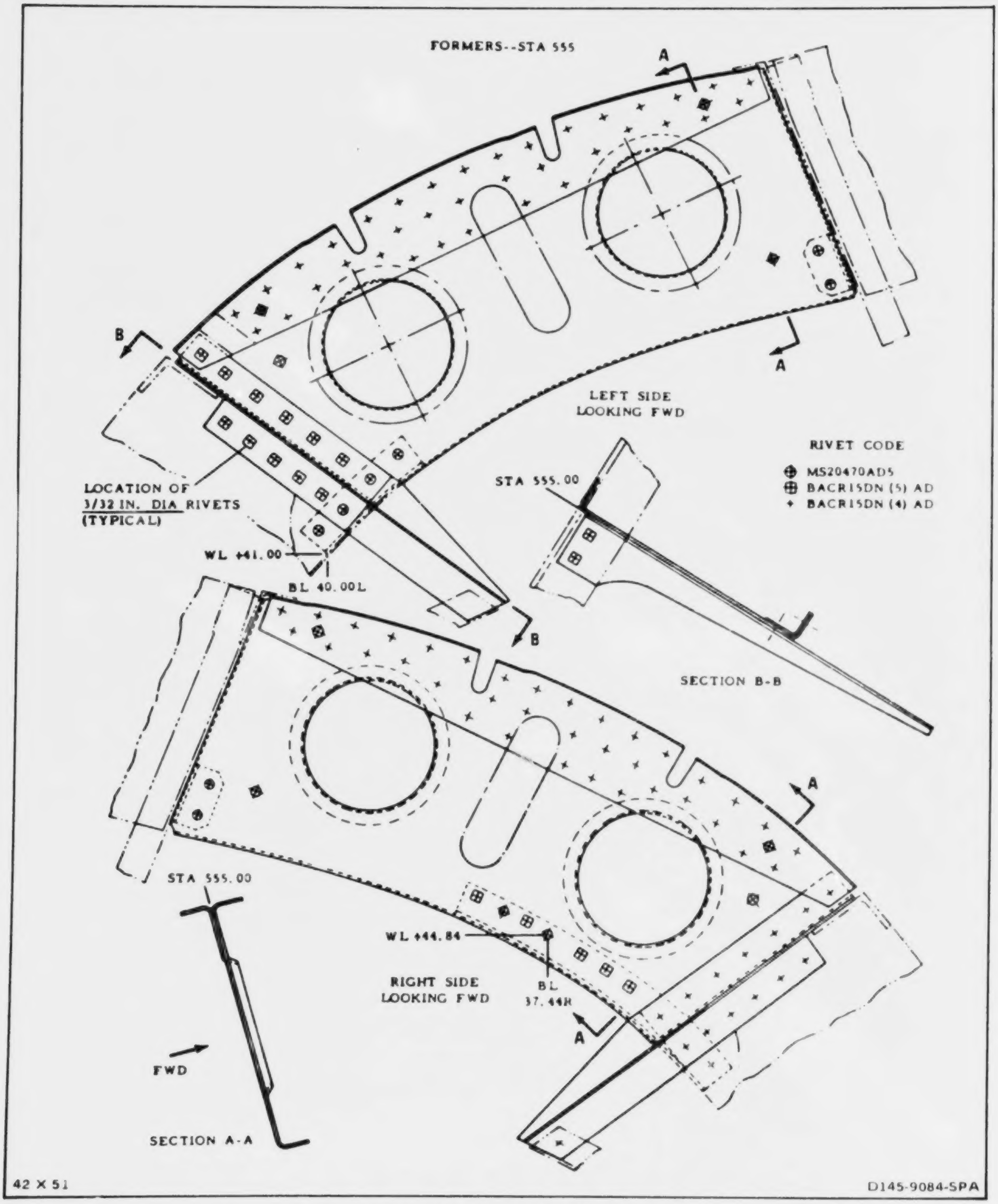
ALL DIMENSIONS ARE IN INCHES

42 X 51

D145-9085-SPA

Former Repairs — Aft Fuselage Structure
(Sheet 16 of 21)

GO TO NEXT PAGE

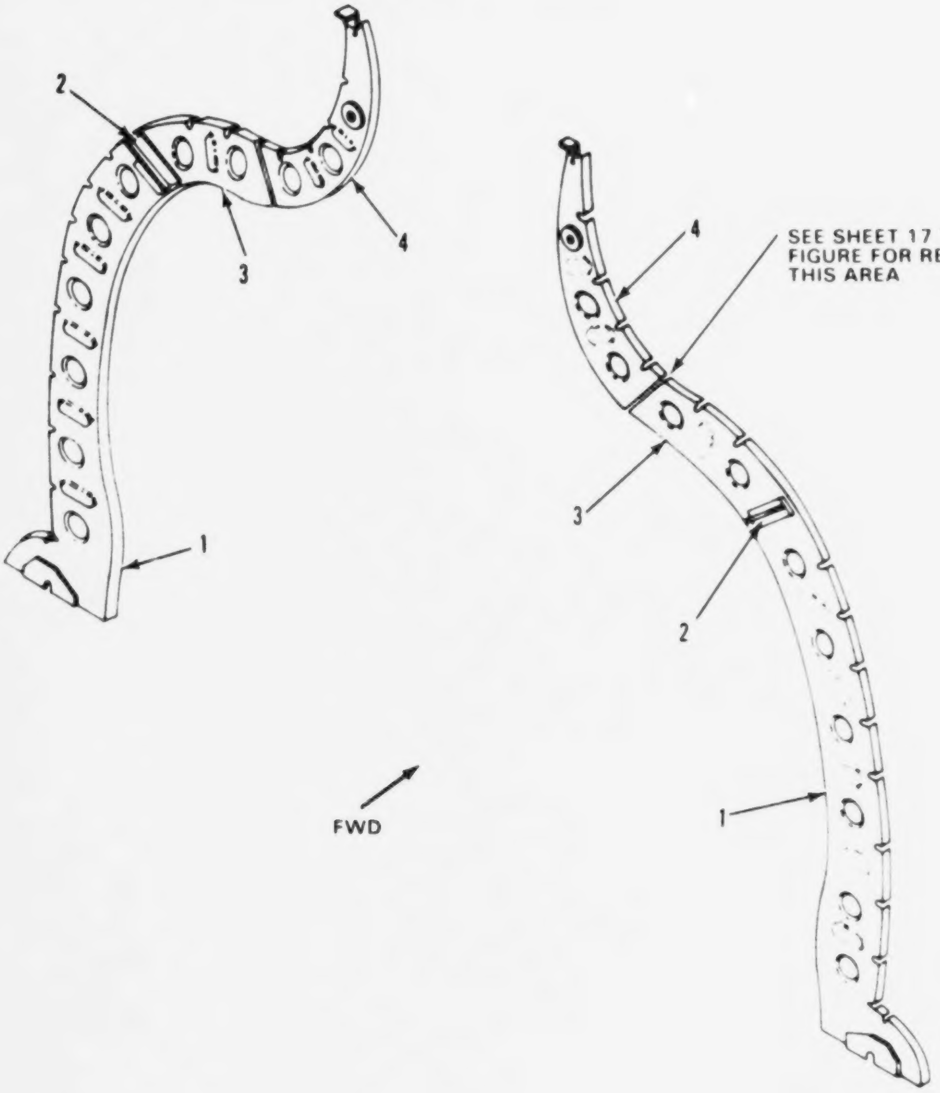

FORMERS--STA 555
A
A
B
B
LEFT SIDE
LOOKING FWD
RIVET CODE
⊕ MS20470AD5
⊞ BACR15DN (5) AD
+ BACR15DN (4) AD
STA 555.00
LOCATION OF
3/32 IN. DIA RIVETS
(TYPICAL)
WL +41.00
BL 40.00L
SECTION B-B
A
A
STA 555.00
WL +44.84
BL
37.44R
RIGHT SIDE
LOOKING FWD
FWD
SECTION A-A
42 X 51
D145-9084-SPA

Former Repairs — Aft Fuselage Structure
(Sheet 17 of 21)

GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18

FORMERS—STATION 555



SEE SHEET 17 THIS FIGURE FOR REPAIRS THIS AREA

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
2	FITTING	AND10136-1601 7075-T6	0.100 4130	NOTE B
3	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
4	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

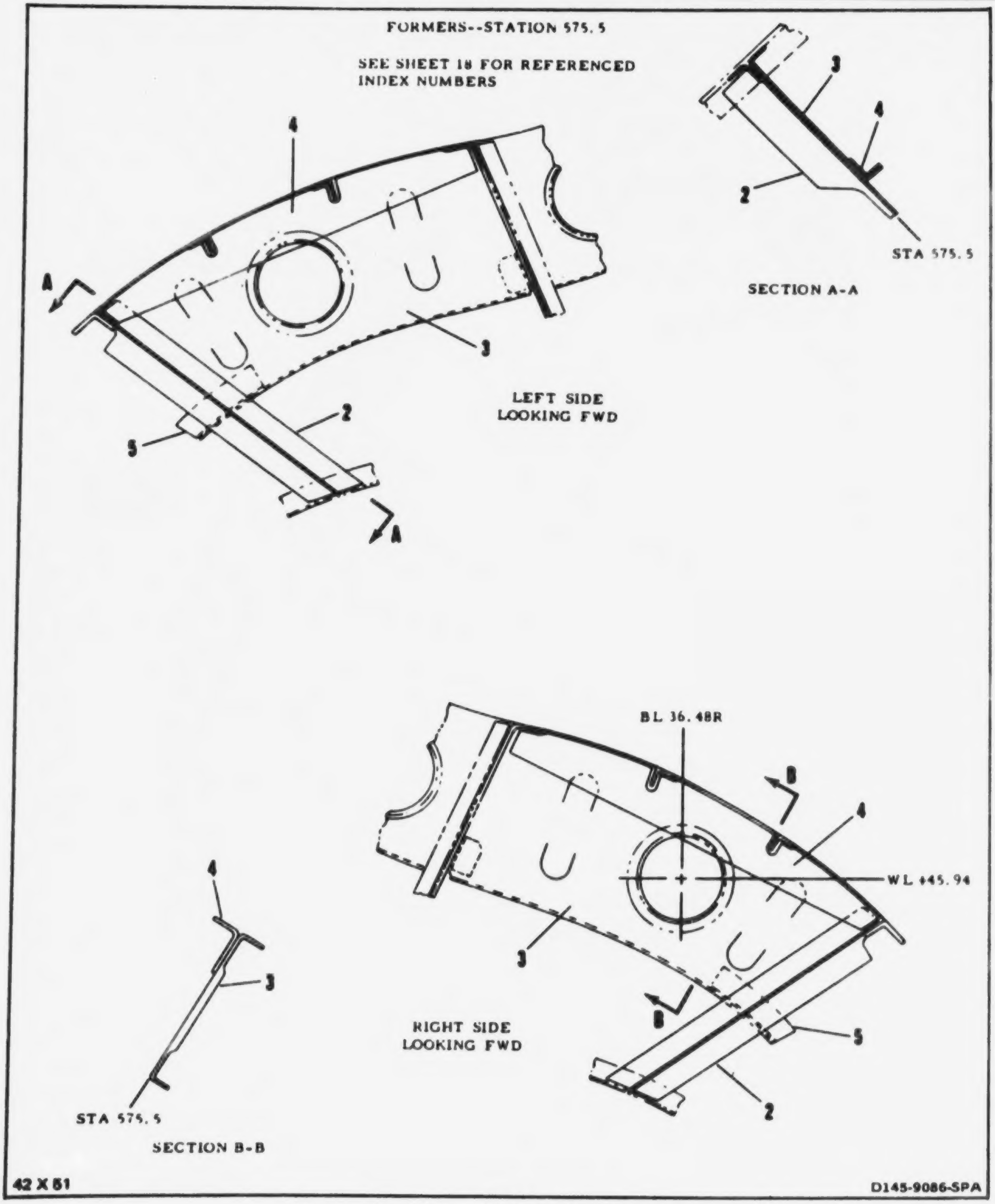
1474

42 X 51

Former Repairs — Aft Fuselage Structure
(Sheet 18 of 21)

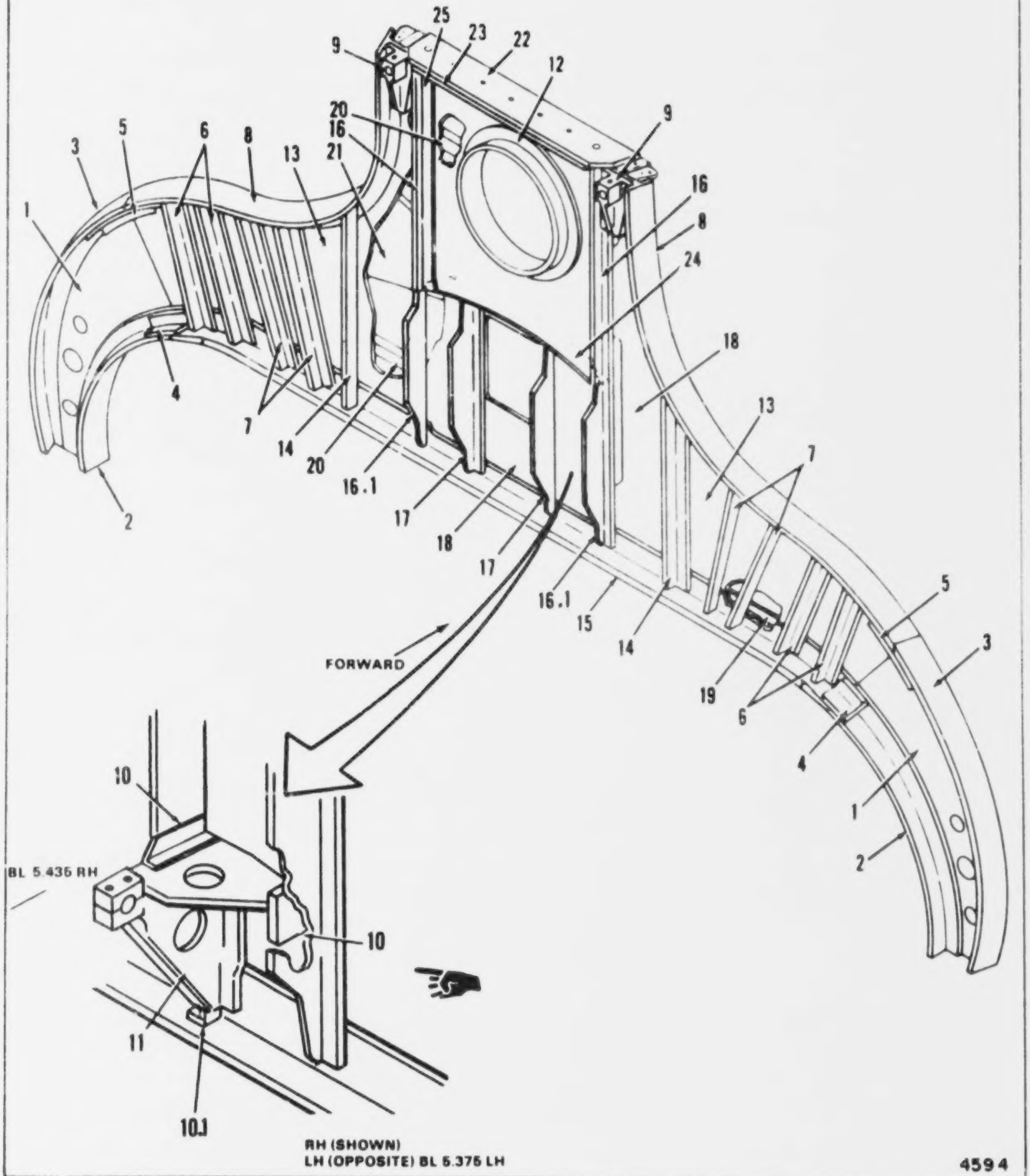
GO TO NEXT PAGE

2-18 REPAIR FORMERS (GENERAL INFORMATION) (Continued) 2-18


FORMERS--STATION 575.5
SEE SHEET 18 FOR REFERENCED INDEX NUMBERS
4
A
3
2
5
A
LEFT SIDE LOOKING FWD
3
4
2
STA 575.5
SECTION A-A
BL 36.48R
B
4
WL +45.94
3
B
5
2
RIGHT SIDE LOOKING FWD
4
3
STA 575.5
SECTION B-B
42 X 51
D145-9086-SPA

Former Repairs — Aft Fuselage Structure
(Sheet 19 of 21)

GO TO NEXT PAGE


25
23
22
9
12
20
16
21
3
5
6
8
13
1
9
16
8
24
18
4
7
14
20
16.1
17
18
17
13
7
16.1
15
14
5
3
19
6
4
1
2
2
FORWARD
10
BL 5.435 RH
10
11
10.1
RH (SHOWN)
LH (OPPOSITE) BL 5.375 LH
4594

Former Repairs — Aft Fuselage Structure
(Sheet 20 of 21)

GO TO NEXT PAGE

FORMER — STATION 594

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.050	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
2	CAP	AND10136-2006	7075-T6	0.125	4130	NOTE D.
3	CAP	VS90307	7075-T6	0.125	4130	NOTE D.
4	ANGLE	AND10134-1205	7075-T6	0.100	4130	NOTE D.
5	ANGLE	VS90307	7075-T6	0.125	4130	NOTE D.
6	STIFFENER	AND10136-1401	7075-T6	0.071	4130	2-29
7	STIFFENER	ALCOA 15820	7075-T6	0.080	4130	2-29
8	CAP	VS90311	7075	0.125	4130	NOTE D.
9	FITTING		2014-T6	NOTE B.	—	
10	TEE	ALCOA 43774	7075T6511	ALCOA 43774	7075-T6511	NOTE D.
10.1	TEE	ALCOA 52361	7075-T6511	ALCOA 52361	7075-T6511	NOTE D.
11	SUPPORT			NOTE C.	—	
12	DOUBLER	0.063	2024-T3	0.063	2024-T3	NOTE D.
13	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
14	STIFFENER	AND10134-1006	7075-T6	0.100	4130	2-29
15	CAP	VS90312	7075-T6	0.125	4130	NOTE D.
16	STIFFENER	0.080	7075-T6 BARE	0.090	7075-T6 CLAD	2-29
16.1	CHANNEL	0.090 CRES 17-7 PH	MIL-S-25043, COND A	0.090 CRES 17-7 PH	MIL-S-25043, COND A	NOTE D.
17	CHANNEL	0.090 CRES 17-7 PH	MIL-S-25043, COND A	0.090 CRES 17-7 PH	MIL-S-25043, COND A	NOTE D.
18	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
19	STRAP	0.063 CRES 17-7 PH		0.063 CRES 17-7 PH		2-13
20	STIFFENER	AND10133-0601	7075-T6	—		2-29
21	CHANNEL	0.072	7075-T6 BARE	0.080	7075-T6 CLAD	NOTE D.
22	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE D.
23	CAP	ALCOA 33495	7075-T6	0.040	4130	NOTE D.
24	STIFFENER	0.090	7075-0	0.090	7075-0	2-29
25	STIFFENER	0.080	2024-T3	0.080	2024-T3	2-29

NOTES:
A. All dimensions are in inches.
B. Replace with new fitting 114S3848.
C. Replace with new support 145S3805.
D. TM 55-1500-204-25/1.

Former Repairs — Aft Fuselage Structure
(Sheet 21 of 21)

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-19 FORMER MINOR DAMAGE (GENERAL INFORMATION) 2-19

INTIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

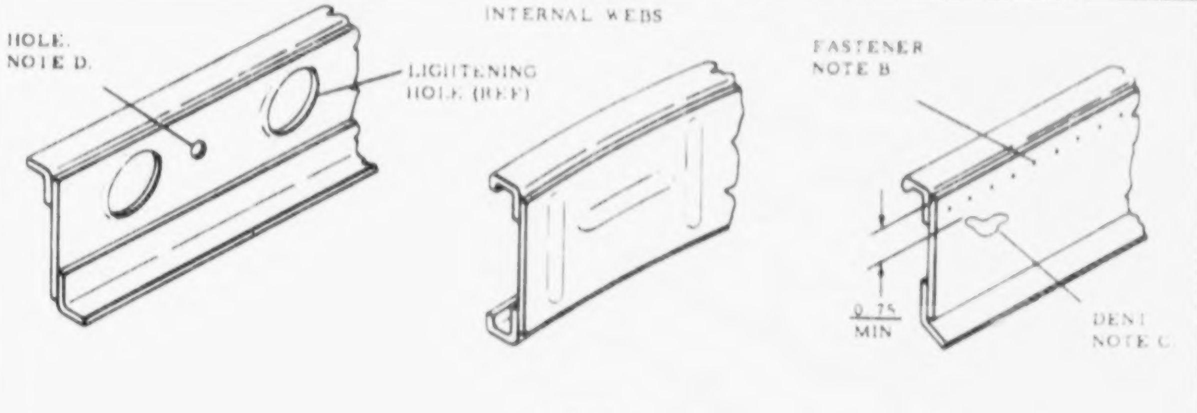
Personnel Required:
67U30 Inspector

References:
Task 2-18

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Minor damage is damage which can exist as is. Also, damage that can be fixed easily such as burnishing nicks and scratches and removal of small damaged areas is considered minor. For specific former location refer to Task 2-18.
2. Damage must clear bolts, rivets, and radiuses a minimum of 0.75 inch.
3. Damage to fittings is limited to burnishing which will not reduce area thickness more than 10 percent.
4. Certain splice attachment hardware holes may be 0.015 inch oversize.



NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD

C. SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST 0.75

D. NO HOLES PERMITTED UNREPAIRED IN ANY WEBS

42 x

D145-9094-5PA

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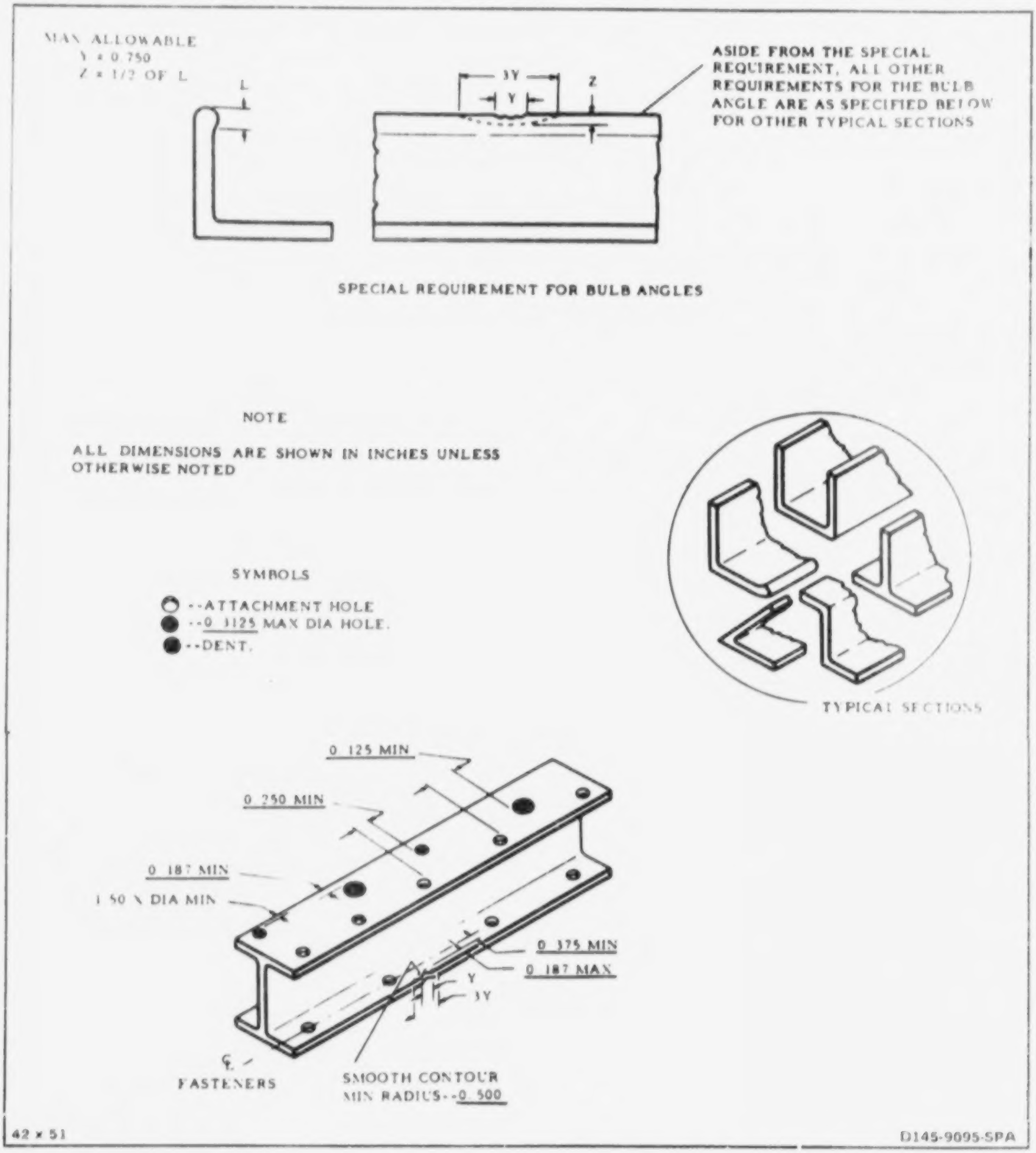
2-19 FORMER MINOR DAMAGE (GENERAL INFORMATION) (Continued) 2-19


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SPECIAL REQUIREMENT FOR BULB ANGLES
TYPICAL SECTIONS
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄
FASTENERS
SMOOTH CONTOUR
MIN RADIUS--0.500
42 x 51
D145-9095-SPA

NOTE

ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
● --DENT.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-20 FORMER REPARABLE DAMAGE (GENERAL INFORMATION) (AVIM) 2-20

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-19
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Damage more extensive than minor (Task 2-19) but not exceeding one-half web cross section shall be repaired by patching.

2. Damage more than one-half of web cross section, or that removes the heel of an extruded section shall be repaired by insertion (TM 55-1500-204-25/1).

3. Extensive damage, as loss of major portion of former or numerous isolated damages requires replacement in whole or part.

4. Damage to fittings joining the bottom sections to the side sections requires replacement of bottom (bonded assembly) section.

5. Damaged fittings, clips and small brackets or supports require replacement.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-21 REPAIR LONGERONS 2-21

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

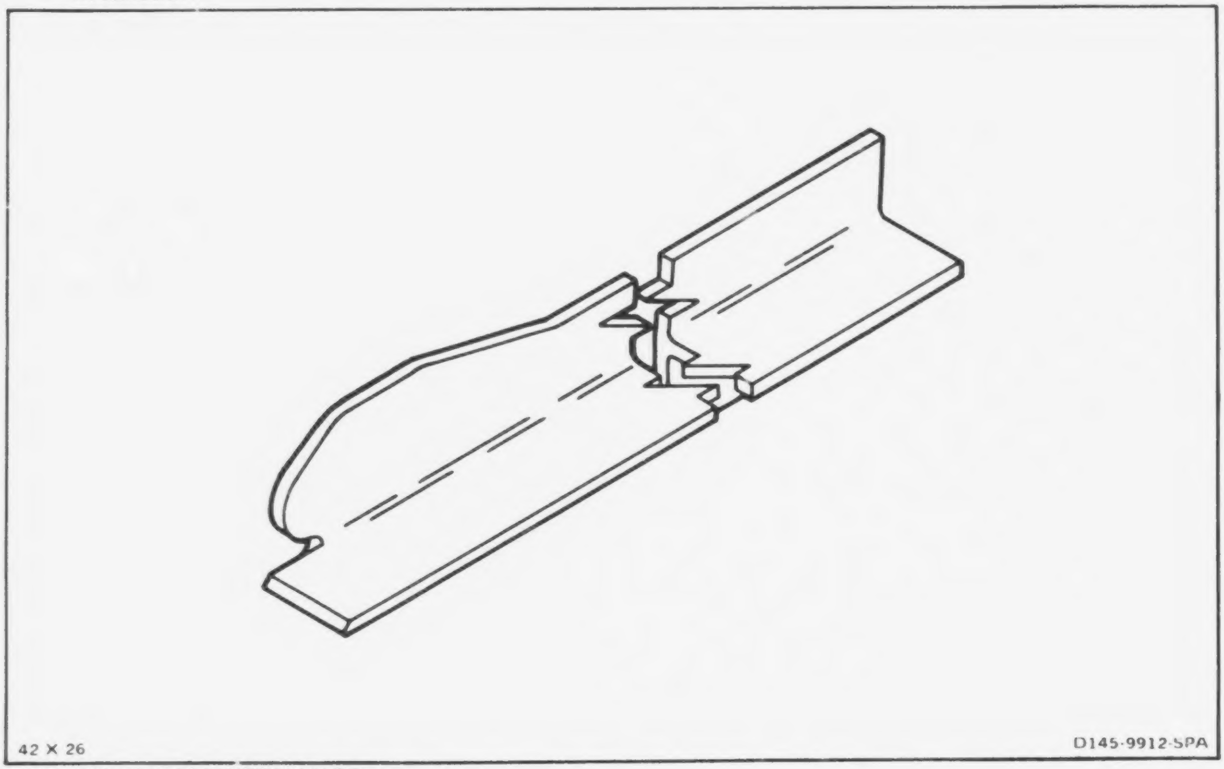
References:
Task 2-22
Task 2-23

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Longerons are extruded aluminum alloy members variously located in the fuselage assemblies. Longerons are similar to stringers in function.
2. Damage to longerons shall be classified as minor (Task 2-22) or repairable (Task 2-23).



FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-22 LONGERONS MINOR DAMAGE 2-22

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-23

Equipment Condition:
As Required

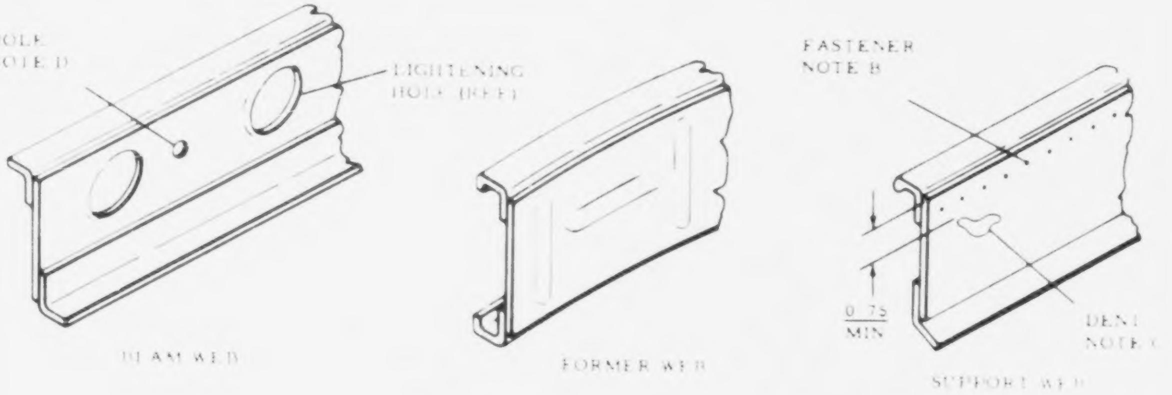
General Safety Instructions:
As Required

1 Minor damage is damage which can be fixed easily, such as burnishing of nicks and scratches and removal of small damaged areas.

2 Burnished areas shall clear bolts, rivets and radiuses a minimum of 0.75 inch and shall exceed a depth equal to 10 percent of material thickness.

3 See examples of damage to internal webs and formed parts and to extruded sections.

4 For AVIM damage repair see (Task 2-23).



NOTES

A ALL DIMENSIONS ARE IN INCHES

B FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD

C SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST 0.75

D NO HOLES PERMITTED UNREPAIRED IN ANY WEBS

42 X 26

D145-9913-SPA

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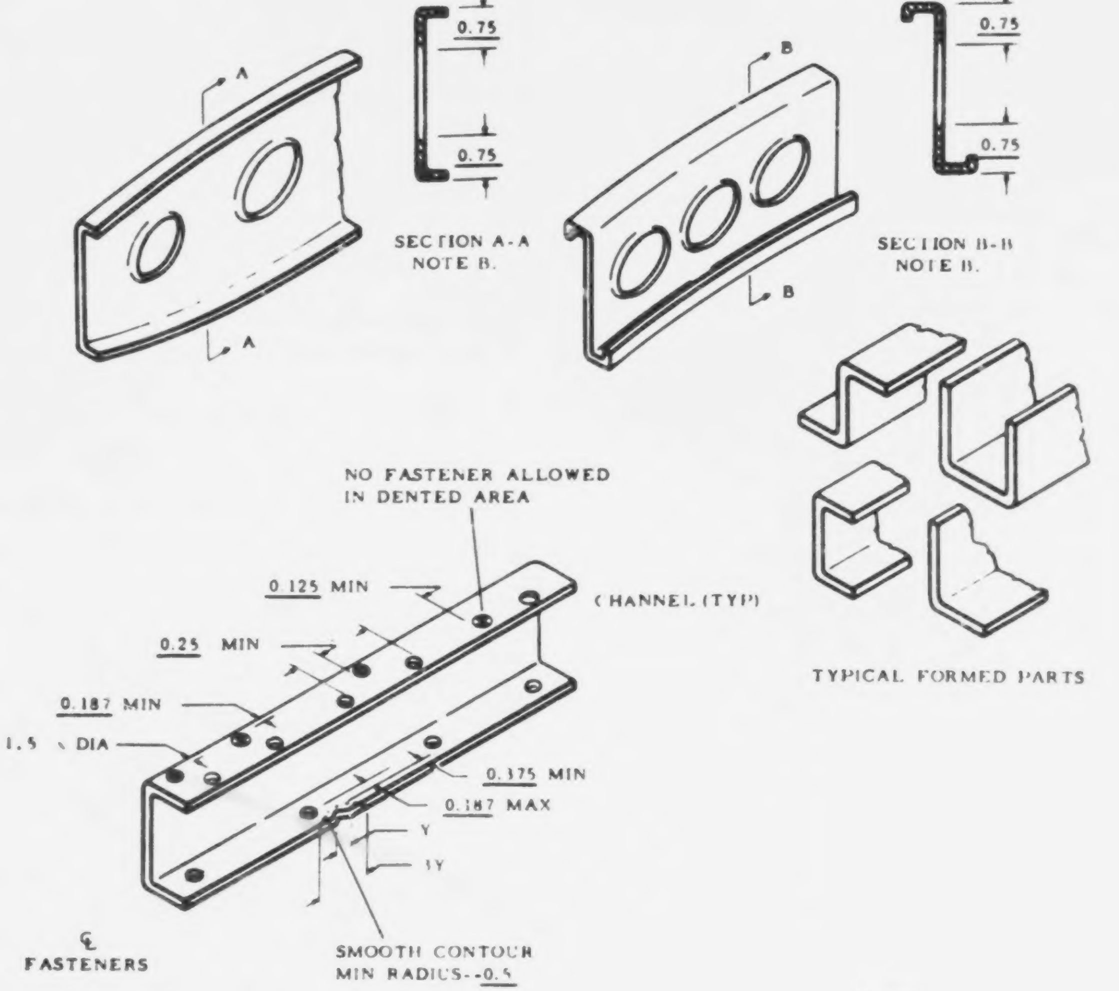
2-22 LONGERONS MINOR DAMAGE (Continued) 2-22


A
A
0.75
0.75
SECTION A-A
NOTE B.
B
B
0.75
0.75
SECTION B-B
NOTE B.
TYPICAL FORMED PARTS
NO FASTENER ALLOWED
IN DENTED AREA
0.125 MIN
CHANNEL (TYP)
0.25 MIN
0.187 MIN
1.5 x DIA
0.375 MIN
0.187 MAX
Y
3Y
℄
FASTENERS
SMOOTH CONTOUR
MIN RADIUS--0.5

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS MINOR OR NOT MINOR ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS MINOR WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
⊗ --DENT.

42x51 D146-9914-SPA

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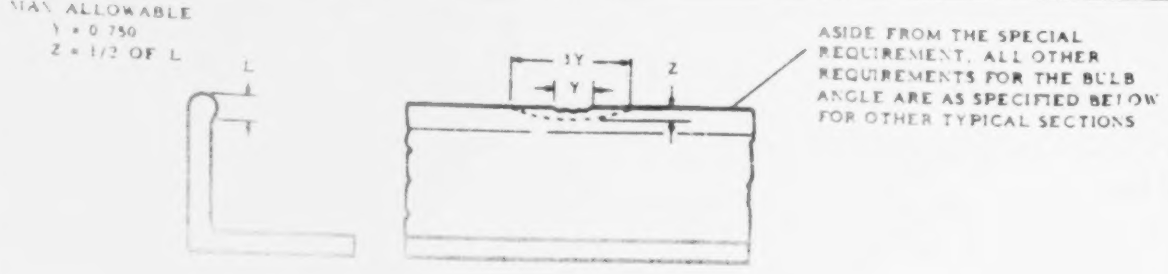
2-22 LONGERONS MINOR DAMAGE (Continued) 2-22


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS

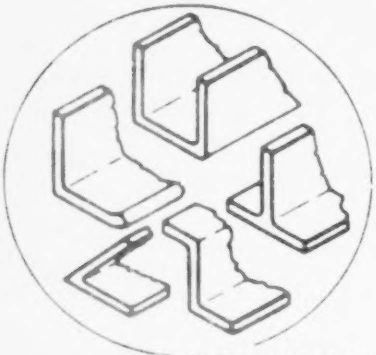
SPECIAL REQUIREMENT FOR BULB ANGLES

NOTE

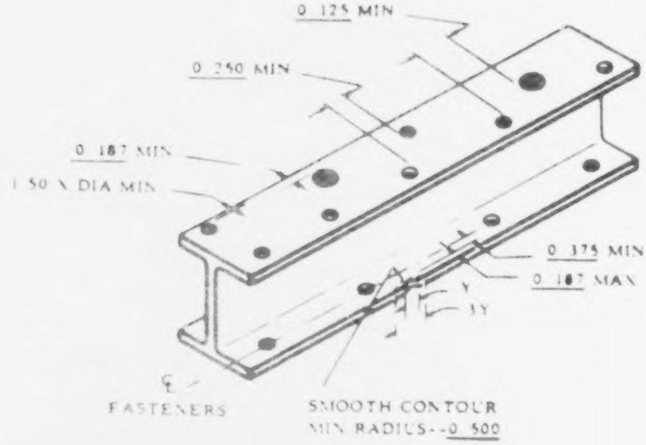
ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE
● --DENT



TYPICAL SECTIONS


0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.500

42 X 51

D145-9915-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-23 LONGERON REPARABLE DAMAGE (AVIM) 2-23

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-7
Task 2-22
Task 2-336

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. For damage classifications for extruded parts, refer to Task 2-22 and 2-336.
2. Repair damage to the web affecting less than one-half of a web cross section by patching (Task 2-22).
3. If damage to the web affects more than one-half of a web cross section, repair it by insertion (Task 2-7).
4. Replace longeron if a major portion of the longeron is damaged, or if there are many isolated damages (Task 2-336).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-24 REPAIR BEAMS

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-25
Task 2-26
Task 2-27

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Beams are made of aluminum alloy webs reinforced with formed and extruded stiffeners. Beams provide support for cockpit, cabin, ramp, aft fuselage and aft pylon structure.
2. Damage to beams shall be classified as minor (Task 2-25), reparable (Task 2-26), and damage requiring replacement (Task 2-27).
3. Damage such as loss of a major portion of a beam section or an individual member is considered extensive damage. The beam section or individual member must be replaced.

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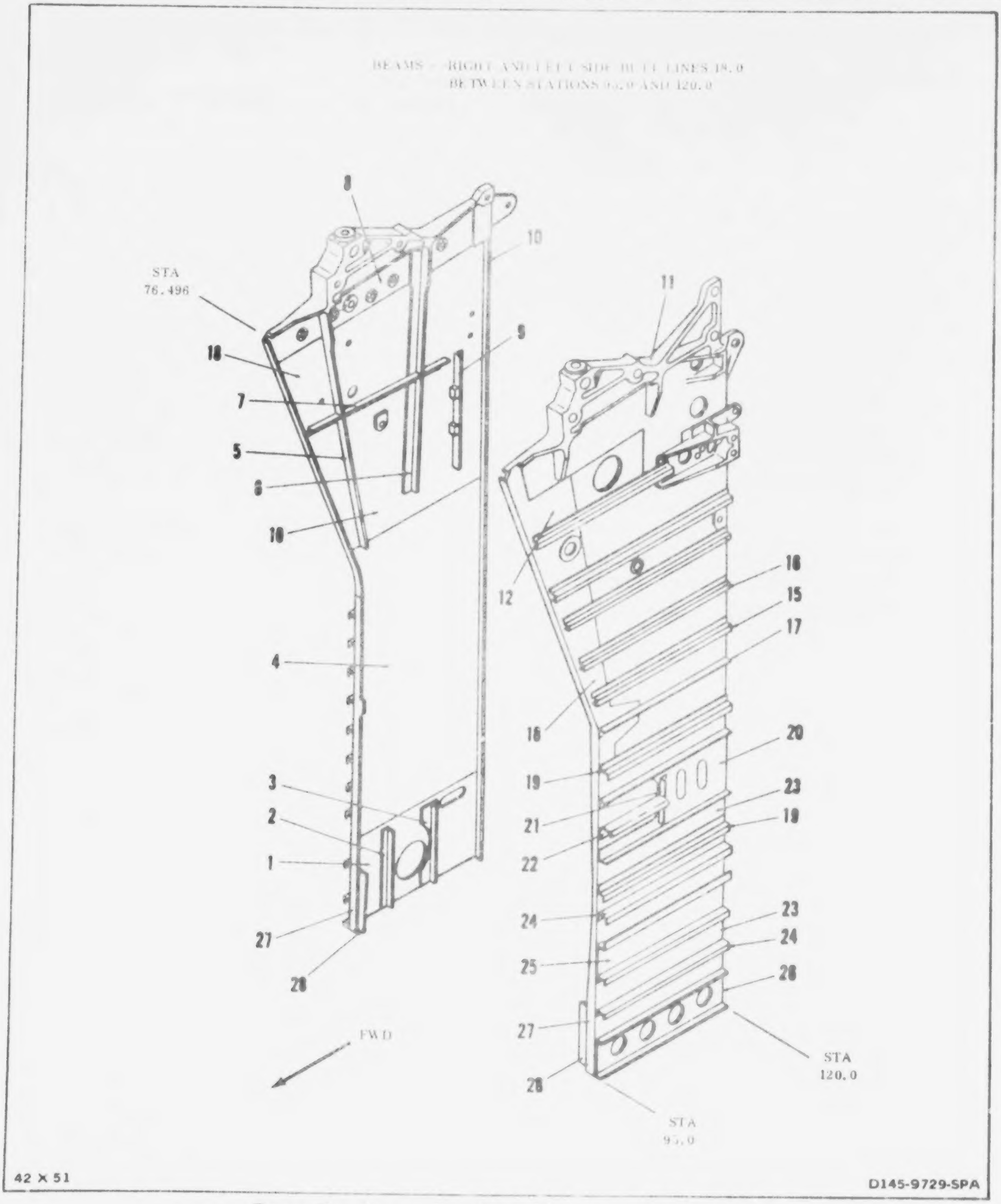
2-24 REPAIR BEAMS (Continued) 2-24


BEAMS – RIGHT AND LEFT SIDE BUTT LINES 18.0
BETWEEN STATIONS 95.0 AND 120.0
8
10
STA
76.496
11
18
9
7
5
6
10
16
12
15
17
4
16
20
19
3
23
2
21
19
1
22
23
24
24
27
25
28
28
27
FWD
28
STA
120.0
STA
95.0
42 X 51
D145-9729-SPA

Beam Repairs — Fusealage Structure Assembly
(Sheet 1 of 14)

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2-24 REPAIR BEAMS (Continued)

BEAMS — RIGHT AND LEFT SIDE BUTT LINES 18.0
BETWEEN STATIONS 95.0 AND 120.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
2	STIFFENER	ALCOA 62564	7075-T6	0.080	4130	2-29
3	T-SECTION	ALCOA 32220	7075-T6	0.050	4130	NOTE F
4	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
5	ANGLE	AND10134-1604	7075-T6511	AND10134-1604	7075-T6511	NOTE F
6	ANGLE	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	NOTE F
7	ANGLE	0.032	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE F
8	FITTING NOTE E		7050-T73652	NOTE C		
9	ANGLE	BAC1503	7075-T6511	BAC1503	7075-T6511	NOTE F
10	WEB	0.050	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
11	FITTING NOTE E		7050-T73652	NOTE B		
12	WEB	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
13	STIFFENER	0.050	7075-0 BARE	0.050	7075-0 CLAD	2-29
14	STIFFENER	0.050	7075-0 BARE	0.050	7075-0 CLAD	2-29
15	CHANNEL	0.050	7075-0 BARE	0.050	7075-0 CLAD	2-13
16	CHANNEL	0.050	7075-0 BARE	0.050	7075-0 CLAD	2-13
17	STIFFENER	0.080	7075-0 BARE	0.080	7075-0 CLAD	2-29
18	WEB	0.025	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
19	STIFFENER	0.050	7075-0 BARE	0.050	7075-0 CLAD	2-29
20	DOUBLER	0.080	2024-T4 CLAD	0.080	2024-T3 CLAD	NOTE F
21	STIFFENER	ALCOA 22477	7075-T6	0.040	4130	2-29
22	SUPPORT	0.050	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE F
23	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
24	CHANNEL	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
25	CHANNEL	0.050	2024-T4 BARE	0.063	2024-T4 CLAD	2-13
26	CHANNEL	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
27	CAP	AND10133-2003		0.190	4130	NOTE F
28	SUPPORT NOTE E			NOTE D		NOTE F

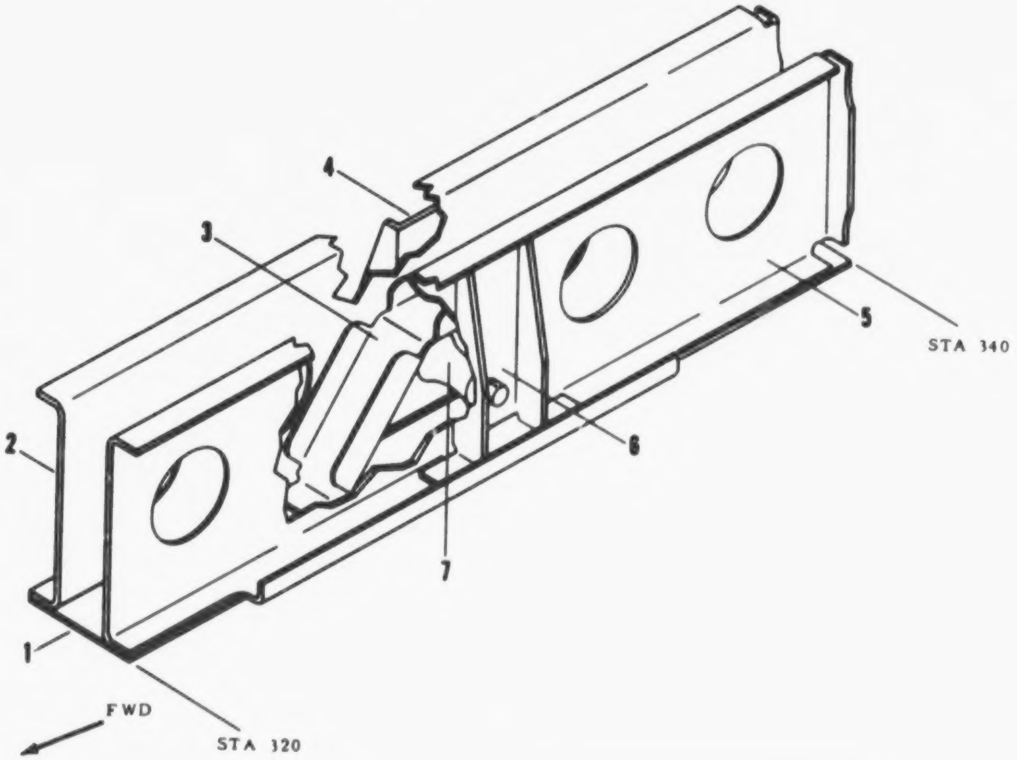
NOTES
A All dimensions are in inches.
B Replace with new fitting 145S1813 or 145S1867.
C Replace with new fitting 145S1838 or 145S1868.
D Replace with new fitting 114S1809-4.
E Replacement of fittings 8, 11, and 28 is not authorized at AVUM or AVIM levels.
F TM 55-1500-204-25/1

Beam Repairs — Fuselage Structure Assembly
(Sheet 2 of 14)

GO TO NEXT PAGE

2-24 REPAIR BEAMS (Continued) 2-24

RESCUE HOIST BEAM



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	CLOSING PLATE	0.032 2024-T4 CLAD	0.032 2024-T3 CLAD
2	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
3	COVER	0.016 2024-T4 CLAD	0.025 2024-T3 CLAD
4	CHANNEL	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
5	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
6	CHANNEL	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
7	FITTING	1.0 DIA 7075-T6 RD BAR	NOTE B.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REPLACE WITH NEW FITTING 114S2839-1

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D145-9730-SPA

Beam Repairs — Fuselage Structure Assembly (Sheet 3 of 14)

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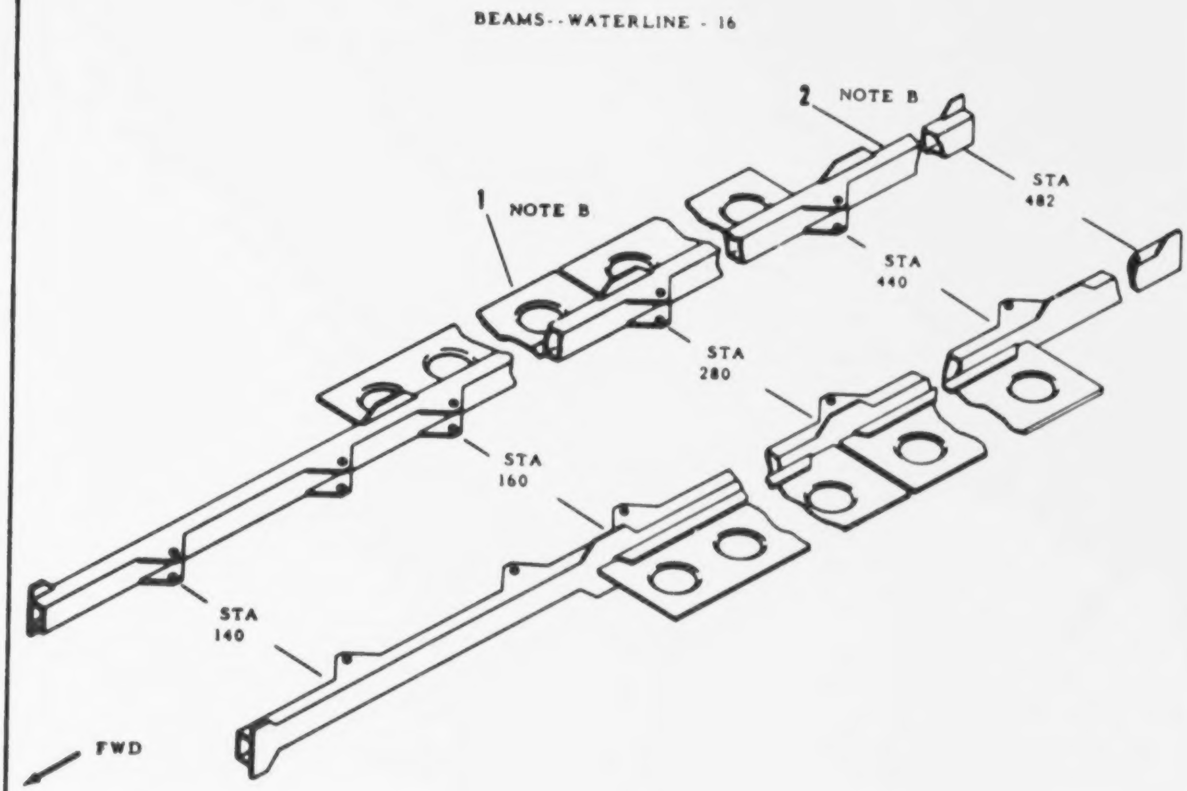
2-24 REPAIR BEAMS (Continued) 2-24


BEAMS--WATERLINE - 16
2 NOTE B
1 NOTE B
STA 482
STA 440
STA 280
STA 160
STA 140
FWD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
2	SEAT RAIL SUPPORT	VS90517 MAG ZK60A-T5	NOTE C	--

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. ALL WEBS AND SEAT RAIL SUPPORTS ARE SIMILAR IN CONSTRUCTION. ORIGINAL AND REPAIR MATERIALS, AND FIGURE REFERENCES ARE APPLICABLE TO ALL WEBS AND SEAT RAIL SUPPORTS

C. IF THE SEAT RAIL SUPPORT (2) IS DAMAGED, A LENGTH OF EXTRUSION, MACHINED TO THE CONFIGURATION OF THE ORIGINAL SECTION, SHOULD BE USED AS SHOWN IN TASK 2-336

42 X 51

D145-9731-SPA

Beam Repairs — Fuselage Structure Assembly (Sheet 4 of 14)

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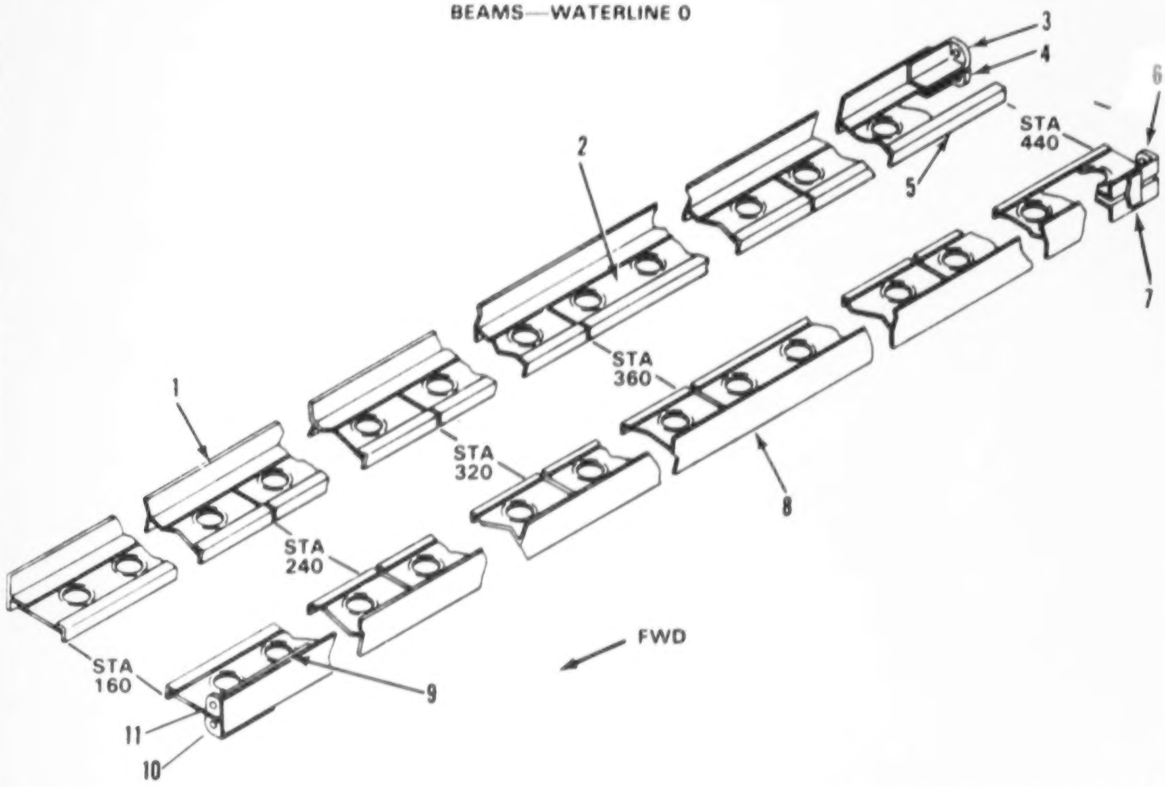
2-24 REPAIR BEAMS (Continued) 2-24

BEAMS—WATERLINE 0



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STRINGER, RH	VS90315 7075-T6	0.090 4130	NOTE F.
2	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
3	FITTING	7075-T6 EXTRUSION	NOTE C.	—
4	FITTING	7075-T6 EXTRUSION	NOTE D.	—
5	CAP	AND10133-0601 7075-T6	0.071 4130	NOTE F.
6	FITTING	7075-T6 EXTRUSION	NOTE C.	—
7	FITTING	7075-T6 EXTRUSION	NOTE D.	—
8	STRINGER, LH	VS90315 7075-T6	0.090 4130	NOTE F.
9	FILLER	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD	—
10	FITTING	7075-T6 EXTRUSION	NOTE D.	—
11	FITTING	7075-T6 EXTRUSION	NOTE E.	—

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. ONLY ONE WEB (2) AND ONE CAP (5) ARE INDEXED. ALL WEBS AND CAPS ARE SIMILAR IN CONSTRUCTION. REPAIR DATA LISTED IS APPLICABLE TO SIMILAR PARTS
C. REPLACE WITH NEW FITTING 114S2818-7 LH OR -8 RH
D. REPLACE WITH NEW FITTING 114S2818-9 LH OR -10 RH
E. REPLACE WITH NEW FITTING 114S2818-5
F. TM 55-1500-204-25/1

2525

Beam Repairs — Fuselage Structure Assembly (Sheet 5 of 14)

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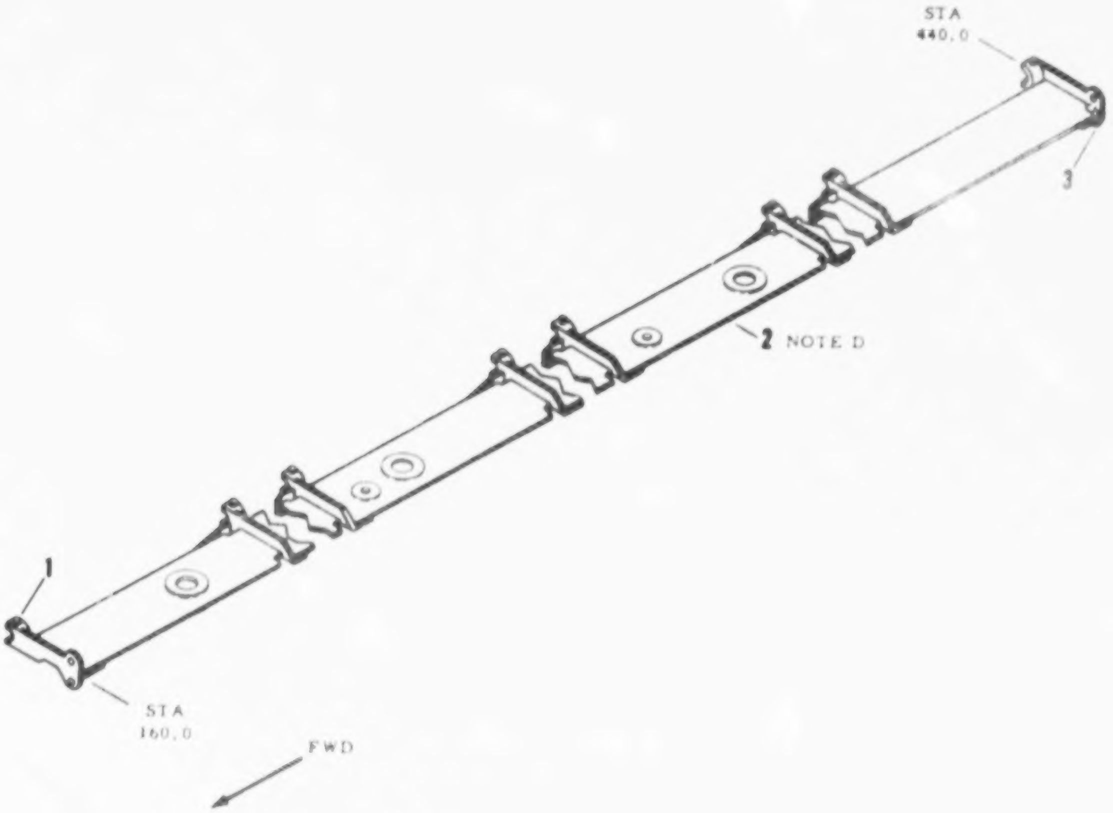
TROOP SEAT BACKREST AND LITTER POLE BEAMS - - WATERLINE•29.0



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FITTING	7075-T6 FORGING	NOTE B.
2	BEAM	0.020 7075-T6 CLAD	0.032 7075-T6 CLAD
3	FITTING	7075-T6 FORGING	NOTE C.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REPLACE WITH NEW FITTING 114S2837-3 LH, OR -2 RH
C. REPLACE WITH NEW FITTING 114S2837-1 LH, OR -5 RH
D. THE LH BEAM IS SHOWN. THE RH BEAM IS SIMILAR IN CONSTRUCTION. REPAIR DATA IS APPLICABLE TO BOTH

42 X 51

D145-9733-5PA

Beam Repairs — Fuselage Structure Assembly
(Sheet 6 of 14)

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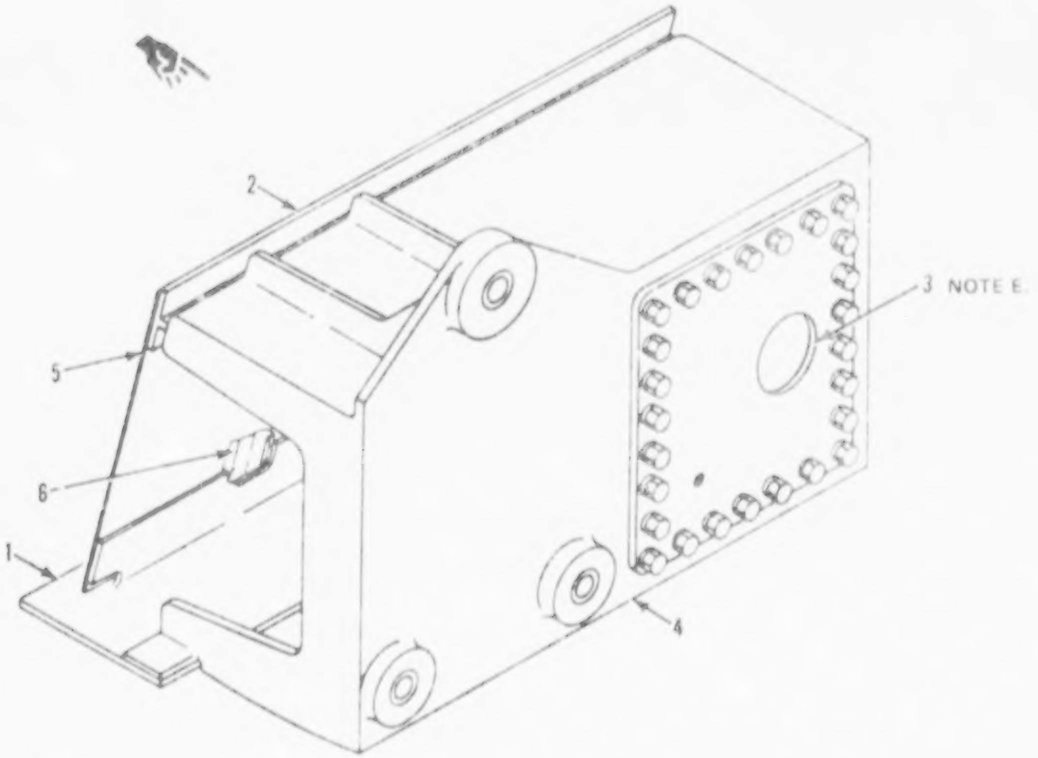
FORWARD LANDING GEAR SUPPORT BEAM



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	T-SECTION	VS90314 7075-T6	NOTE B	—
2	T-SECTION	VS90311 7075-T6	NOTE B	—
3	ACCESS DOOR	0.125 7075-T6 BARE	0.125 7075-T6 CLAD	2-13
4	FITTING ASSEMBLY	2014-T6 FORGING	NOTE C	—
5	SKIN	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	2-13
6	ANGLE	AND10133-0601 7075-T6	0.063 4130	NOTE F

NOTES

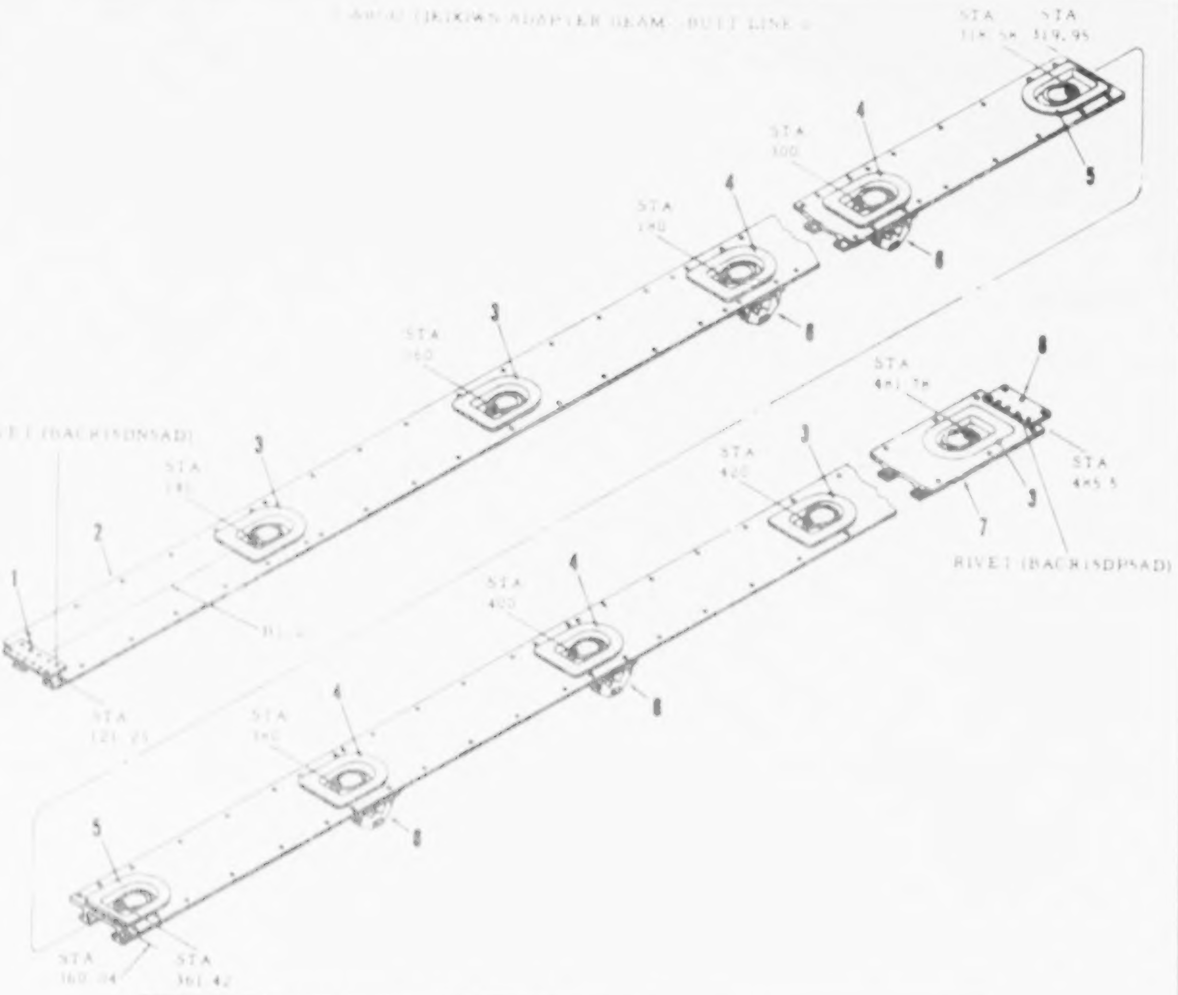
A. ALL DIMENSIONS ARE IN INCHES
B. REPLACE WITH NEW T-SECTION CORRESPONDING TO ORIGINAL MATERIAL
C. REPLACE WITH NEW FITTING 114S2818-1 LH, OR -2 RH
D. THE FAYING SURFACES OF ALL REPAIR AND REPLACEMENT PARTS AND ALL OPENINGS AND GAPS MUST BE SEALED AS DIRECTED TASK 2-324
E. PATCHING IS PERMISSIBLE. IF THE DAMAGE REQUIRES REPAIR BY INSERTION, THE ACCESS DOOR MUST BE REPLACED
F. TM 55-1500-204-25/1

D145-9734-5PA

Beam Repairs — Fuselage Structure Assembly (Sheet 7 of 14)

GO TO NEXT PAGE

2-24 REPAIR BEAMS (Continued) 2-24


CARGO TIEDOWN ADAPTER BEAM - BUTT LINE 0
STA 318.58
STA 319.95
STA 300
STA 280
STA 260
STA 240
RIVET (BACR15DN5AD)
STA 121.21
STA 420
STA 400
STA 380
STA 360.04
STA 361.42
STA 461.76
STA 465.5
RIVET (BACR15DP5AD)
BL 0
1
2
3
4
5
6
7
8

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	PLATE	0.100 2024-T3 CLAD	NOTE J.
2	BEAM	2024-T4 BARE	NOTE D.
3	RECEPTACLE	7075-T6 BARE	NOTE E.
4	RECEPTACLE	7075-T6 BARE	NOTE F.
5	RECEPTACLE	7075-T6 BARE	NOTE G.
6	MOUNT	--	NOTE H.
7	BEAM	2024-T4 BARE	NOTE I.
8	PLATE	0.050 2024-T3 CLAD	NOTE J.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. ALL RECEPTACLES BETWEEN STATIONS 180 AND 300 ARE 114S2893-7
C. ALL RECEPTACLES BETWEEN STATIONS 420 AND 461.76 ARE 114S2891-12
D. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2567-2
E. REPLACE WITH NEW RECEPTACLE 114S2891-12
F. REPLACE WITH NEW RECEPTACLE 114S2893-7
G. REPLACE WITH NEW RECEPTACLE 114S2893-8
H. REPLACE WITH NEW MOUNT 114S5669-1
I. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2568-2
J. REPLACE WITH NEW PART SAME AS ORIGINAL

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D145-9735-SPA

Beam Repairs — Fuselage Structure Assembly
(Sheet 8 of 14)

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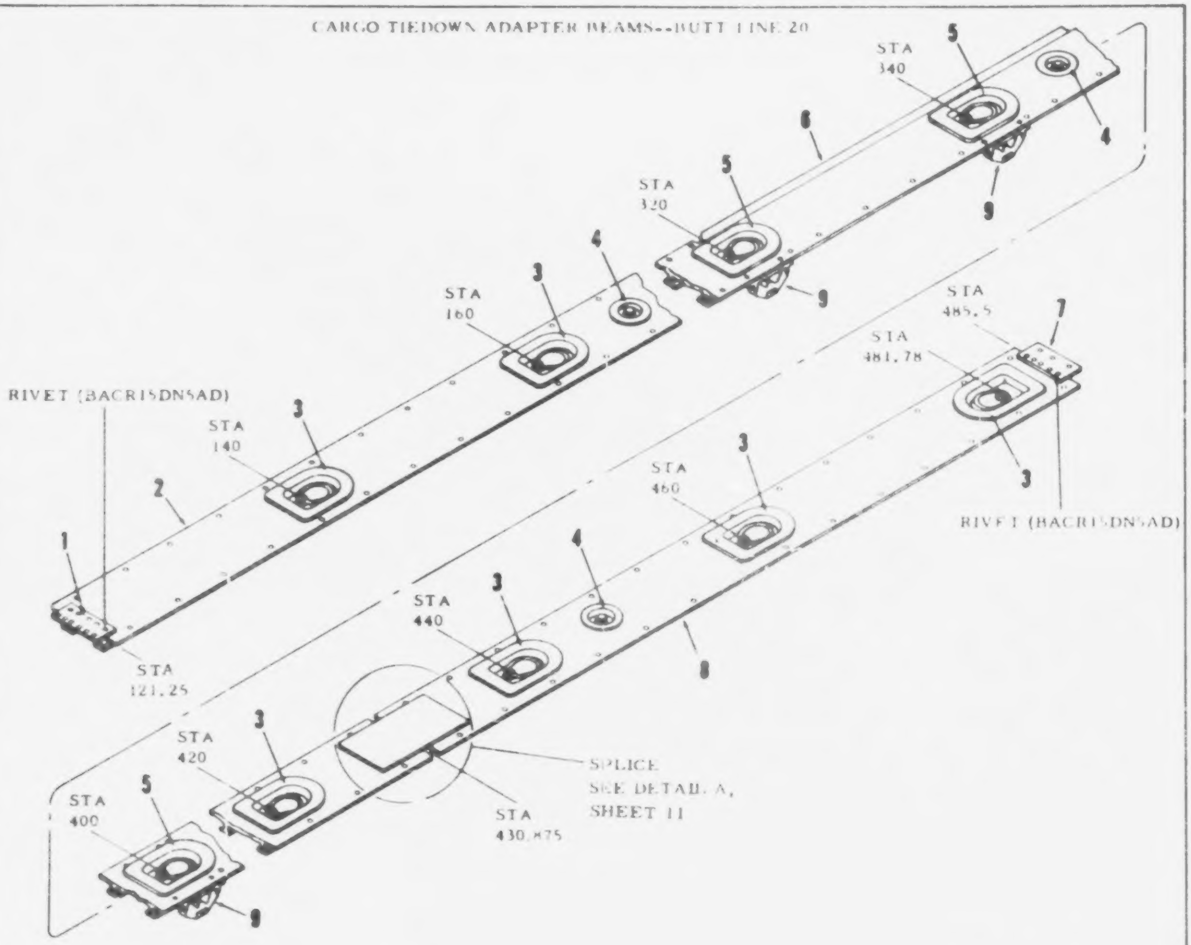
CARGO TIEDOWN ADAPTER BEAMS--BUTT LINE 20
STA 340
5
6
4
9
STA 320
5
9
4
STA 160
3
RIVET (BACR15DN5AD)
STA 140
3
2
1
STA 121.25
STA 485.5
7
STA 481.78
3
RIVET (BACR15DN5AD)
STA 460
3
4
STA 440
3
8
STA 420
3
SPLICE
SEE DETAIL A,
SHEET 11
STA 430.875
STA 400
5
9

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	PLATE	0.100 2024-T3 CLAD	NOTE I.
2	BEAM	2024-T4 BARE	NOTE C.
3	RECEPTACLE	7075-T6 BARE	NOTE D.
4	ADAPTER	--	NOTE E.
5	RECEPTACLE	7075-T6 BARE	NOTE F.
6	SEAL SUPPORT	BAC1517-1459 7075-T6	0.063 4130
7	PLATE	0.050 2024-T3 CLAD	NOTE I.
8	BEAM	2024-T4 BARE	NOTE G.
9	MOUNT	--	NOTE H.

A. ALL DIMENSIONS ARE IN INCHES
B. ALL RECEPTACLES BETWEEN STA 180 AND 400 ARE 114S2893-7
C. REPLACE BEAM IF DAMAGE IS OTHER THAN MINOR WITH NEW BEAM 114S2569-4 LH OR -5 RH
D. REPLACE WITH NEW RECEPTACLE 114S2893-12
E. REPLACE WITH NEW ADAPTER 114S2559-55
F. REPLACE WITH NEW RECEPTACLE 114S2893-7
G. REPLACE BEAM IF DAMAGE IS OTHER THAN MINOR WITH NEW BEAM 114S2569-6 LH AND RH
H. REPLACE WITH NEW MOUNT 114SS669-1
I. REPLACE WITH NEW PART SAME MATERIAL AS ORIGINAL

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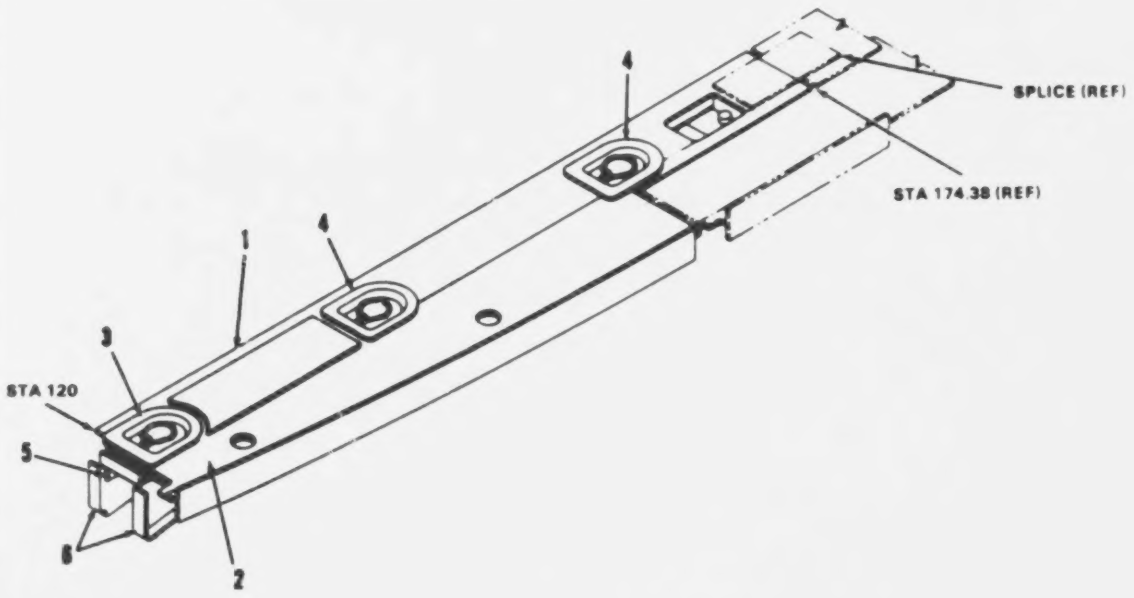
Beam Repairs — Fuselage Structure Assembly (Sheet 9 of 14)

GO TO NEXT PAGE

2-24 REPAIR BEAMS (Continued) 2-24

CARGO TIEDOWN ADAPTER BEAM — BUTT LINE 44



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIALS
1	BEAM	2024-T4 BARE	NOTE B
2	PLATE	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
3	RECEPTACLE	7075-T6 BARE	NOTE C
4	RECEPTACLE	7075-T6 BARE	NOTE D
5	CHANNEL	AND 10137-2405 7075-T6	NOTE E
6	BRACKET	0.050 7075-T6 BARE	NOTE E
7	DOUBLER	0.050 2024-T3 CLAD	NOTE E

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S1555-30 LH OR -31 RH
C. REPLACE WITH NEW RECEPTACLE 114S2893-15
D. REPLACE WITH NEW RECEPTACLE 114S2893-13
E. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW PART SAME AS ORIGINAL

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Beam Repairs — Fuselage Structure Assembly
(Sheet 10 of 14)

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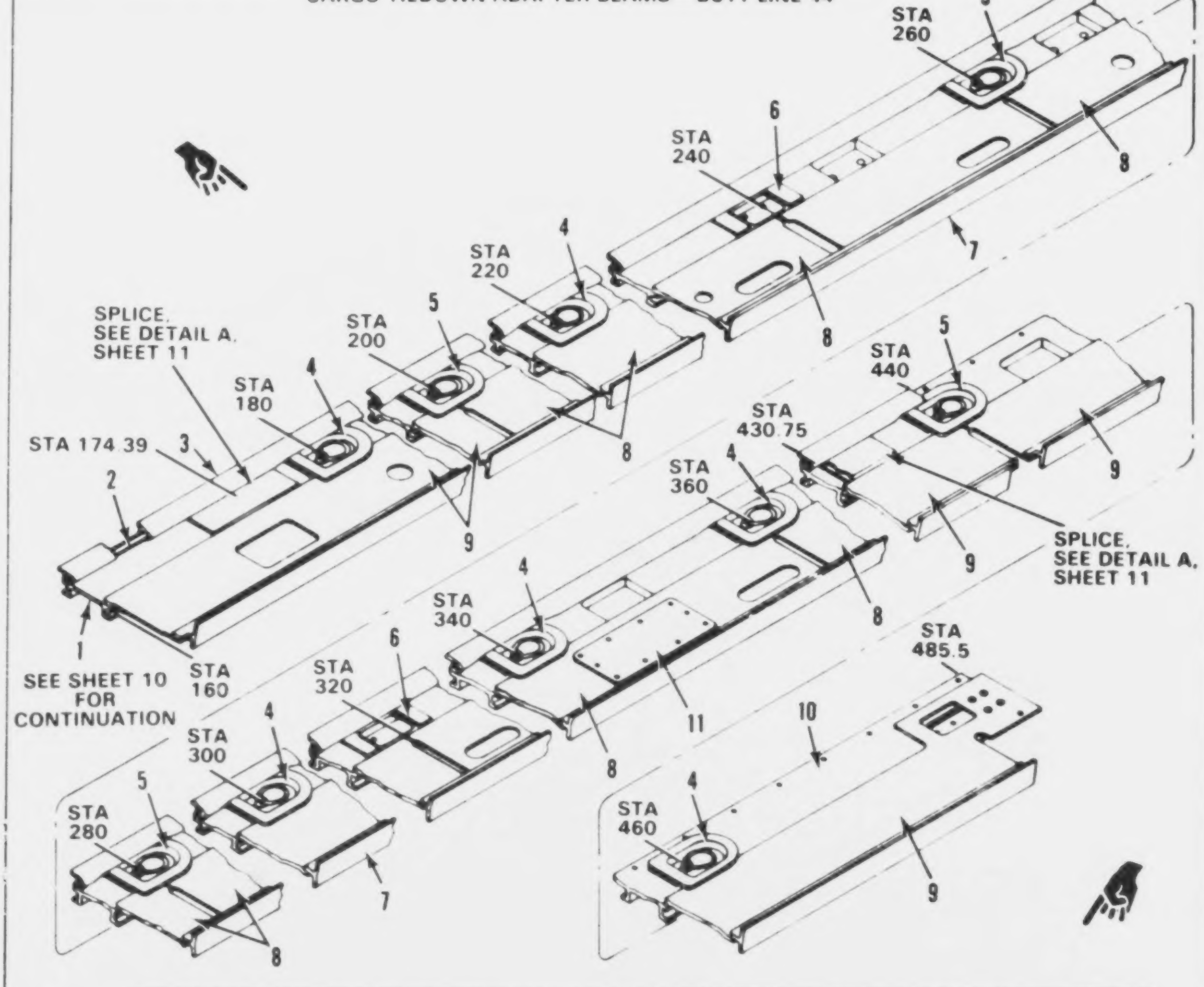
CARGO TIEDOWN ADAPTER BEAMS—BUTT LINE 44


STA 260
5
6
STA 240
8
7
STA 220
4
8
SPLICE, SEE DETAIL A, SHEET 11
STA 200
5
STA 180
4
STA 174.39
3
2
8
9
STA 440
5
STA 430.75
9
STA 360
4
9
SPLICE, SEE DETAIL A, SHEET 11
8
1
SEE SHEET 10 FOR CONTINUATION
STA 160
STA 340
4
STA 320
6
11
8
STA 485.5
10
STA 300
4
STA 280
5
7
8
STA 460
4
9

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	BEAM	2024-T4 BARE	NOTE B.	—
2	RETAINER	0.032 2024-T3 CLAD	0.032 2024-T3 CLAD	NOTE H.
3	SEAL	0.063 URETHANE SHEET	0.063 URETHANE SHEET	—
4	RECEPTACLE	7075-T6 BARE	NOTE C.	—
5	RECEPTACLE	7075-T6 BARE	NOTE D.	—
6	SPACER	0.040 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE H.
7	LONGERON	VS90305 7075-T6	0.100 4130	2-22
8	PLATE	0.040 7075-T6 CLAD	0.040 7075-T6	NOTE H.
9	PLATE	0.050 7075-T6 CLAD	0.050 7075-T6	NOTE H.
10	BEAM	2024-T4 BARE	NOTE E.	—
11	ACCESS PANEL	0.100 MAG AZ31B-H24	NOTE F.	—

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2570-49 LH OR -14 RH
C. REPLACE WITH NEW RECEPTACLE 114S2893-14
D. REPLACE WITH NEW RECEPTACLE 114S2893-9 LH OR -18 RH
E. FOR DAMAGE OTHER THAN MINOR, REPLACE WITH NEW BEAM 114S2570-51 LH OR -52 RH
F. REPLACE WITH NEW ACCESS PANEL 114S5657-1
G. BETWEEN STA 360 AND 420 ALL RECEPTACLES ARE 114S2893-14
H. TM 55-1500-204-25/1

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Beam Repairs — Fuselage Structure Assembly
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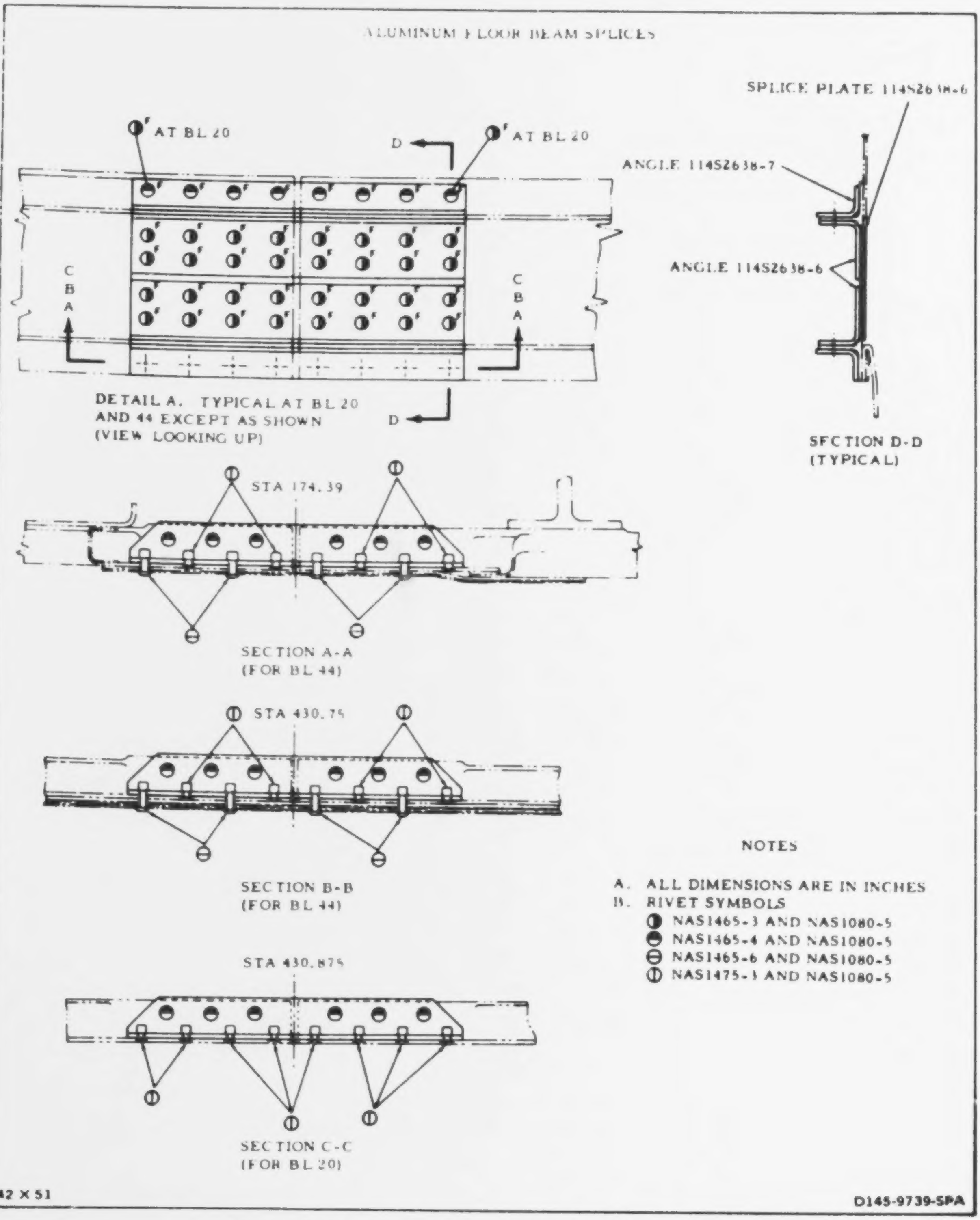
ALUMINUM FLOOR BEAM SPLICES
SPLICE PLATE 114S2638-6
◑F AT BL 20
D
◑F AT BL 20
ANGLE 114S2638-7
ANGLE 114S2638-6
C
B
A
C
B
A
DETAIL A. TYPICAL AT BL 20 AND 44 EXCEPT AS SHOWN (VIEW LOOKING UP)
D
SECTION D-D (TYPICAL)
STA 174.39
SECTION A-A (FOR BL 44)
STA 430.75
SECTION B-B (FOR BL 44)
STA 430.875
SECTION C-C (FOR BL 20)
42 X 51
D145-9739-SPA

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. RIVET SYMBOLS

◑ NAS1465-3 AND NAS1080-5
● NAS1465-4 AND NAS1080-5
⊖ NAS1465-6 AND NAS1080-5
⦶ NAS1475-3 AND NAS1080-5

Beam Repairs — Fuselage Structure Assembly
(Sheet 12 of 14)

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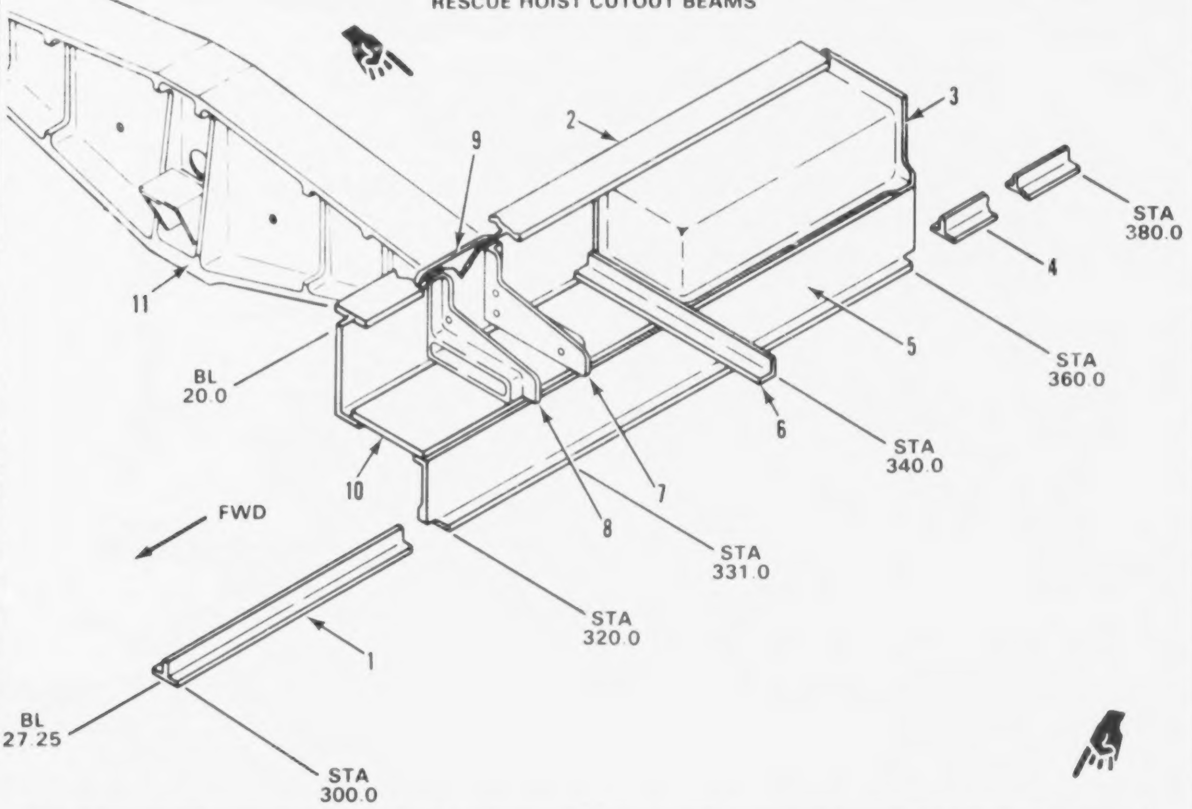
2-24 REPAIR BEAMS (Continued) 2-24

RESCUE HOIST CUTOUT BEAMS



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	AND10136-2006 7075-T6	0.160 4130	NOTE H.
2	BEAM	VS90537 7075-T6	0.250 4130	2-22
3	COVER	—	NOTE C.	—
4	CAP	AND10136-2006 7075-T6	0.160 4130	NOTE H.
5	BEAM	VS90538 7075-T6		2-22
6	CLIP	ALCOA 33811 7075-T6	0.125 4130	NOTE H.
7	FITTING	—	NOTE D.	—
8	FITTING	—	NOTE E.	—
9	FITTING	—	NOTE F.	—
10	WEB	0.125 7075-T6 CLAD	0.125 7075-T6 CLAD	2-13
11	BEAM	—	NOTE G.	—

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. THE LH BEAM IS SHOWN. THE RH BEAM IS SIMILAR IN CONSTRUCTION. REPAIR DATA LISTED IS APPLICABLE TO BOTH CONFIGURATIONS
C. THE CLOTH IS MADE OF FOUR PLIES OF PLASTIC-IMPREGNATED GLASS CLOTH. REFER TO TM 55-1500-204-25/1 FOR TYPICAL REPAIRS TO IMPREGNATED GLASS CLOTH PARTS
D. REPLACE WITH NEW FITTING 114S2841-1
E. REPLACE WITH NEW FITTING 114S2841-2
F. FITTING (SUPPORT 114S2831) REFER TO TASK 16-10 FOR WEAR
G. BEAM 414S2640 REFER TO TASK 16-10 FOR WEAR
H. TM 55-1500-222204-25/1

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Beam Repairs — Fuselage Structure Assembly
(Sheet 13 of 14)

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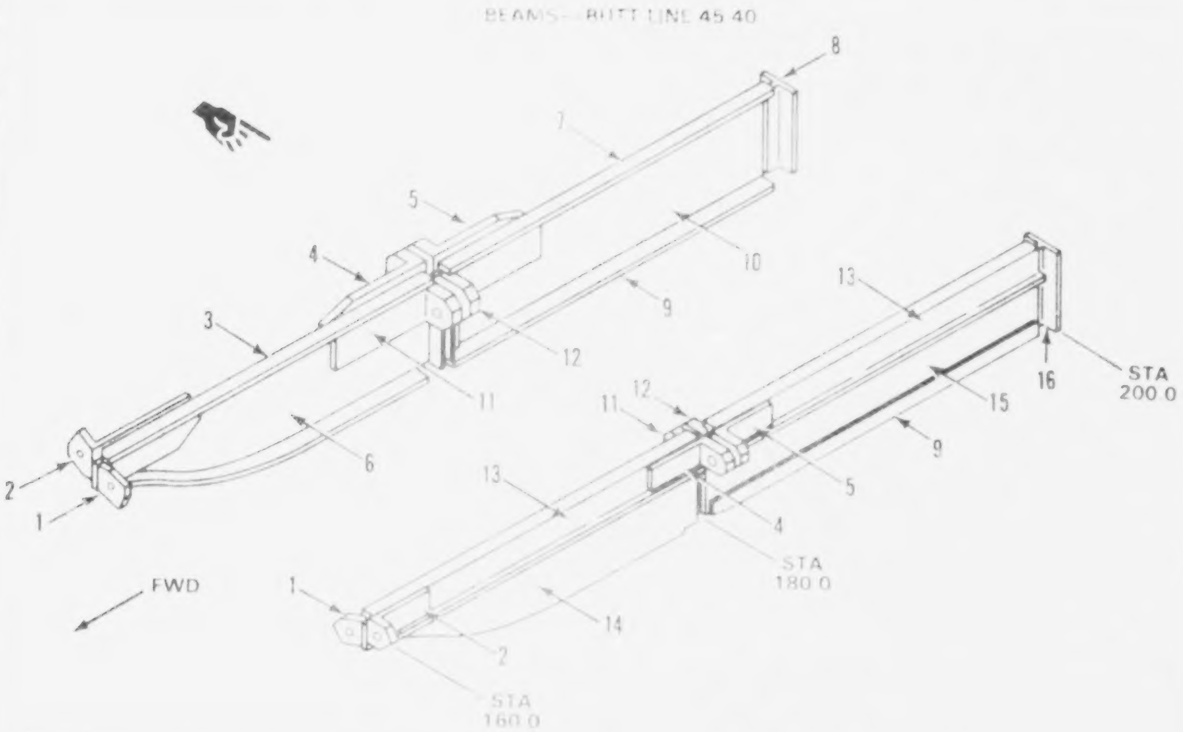
2-24 REPAIR BEAMS (Continued) 2-24



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FITTING	—	NOTE B	—
2	FITTING	—	NOTE B	—
3	CAP	REYNOLDS 10270 7075 T6	0 160 4130	2-13
4	FITTING	—	NOTE B	—
5	FITTING	—	NOTE B	—
6	WEB	0 040 2024 T4 CLAD	0 050 2024 T3 CLAD	2-13
7	CAP	REYNOLDS 10270 7075 T6	0 160 4130	NOTE D
8	CLIP	AND10136 2001 7075 T6	NOTE C	—
9	CAP	ALCOA 62564 7075 T6	0 090 4130	NOTE D
10	WEB	0 071 7075 T6 CLAD	0 071 7075 T6 CLAD	2-13
11	FITTING	—	NOTE B	—
12	FITTING	—	NOTE B	—
13	CAP	ALCOA 85491 7075 T6	0 160 4130	NOTE D
14	WEB	0 040 2024 T4 CLAD	0 050 2024 T3 CLAD	2-13
15	WEB	0 063 7075 T6 CLAD	0 063 7075 T6 CLAD	2-13
16	CLIP	ALCOA 62564 7075 T6	NOTE C	—

NOTES

A ALL DIMENSIONS ARE IN INCHES
B REPLACE FITTINGS (1, 2, 4, 5, 11, AND 12) WITH NEW PARTS
(1) 114S2840-11 RH AND -1 LH
(2) 114S2840-21 RH AND -19 LH
(4) 114S2840-23 RH AND -5 LH
(5) 114S2840-25 RH AND -6 LH
(11) 114S2840-27 RH AND -5 LH
(12) 114S2840-28 RH AND -7 LH
C REPLACE CLIPS WITH A CORRESPONDING LENGTH OF THE SAME TYPE EXTRUSION AS ORIGINAL
D TM 55-1500-204-25/1

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Beam Repairs — Fuselage Structure Assembly (Sheet 14 of 14)

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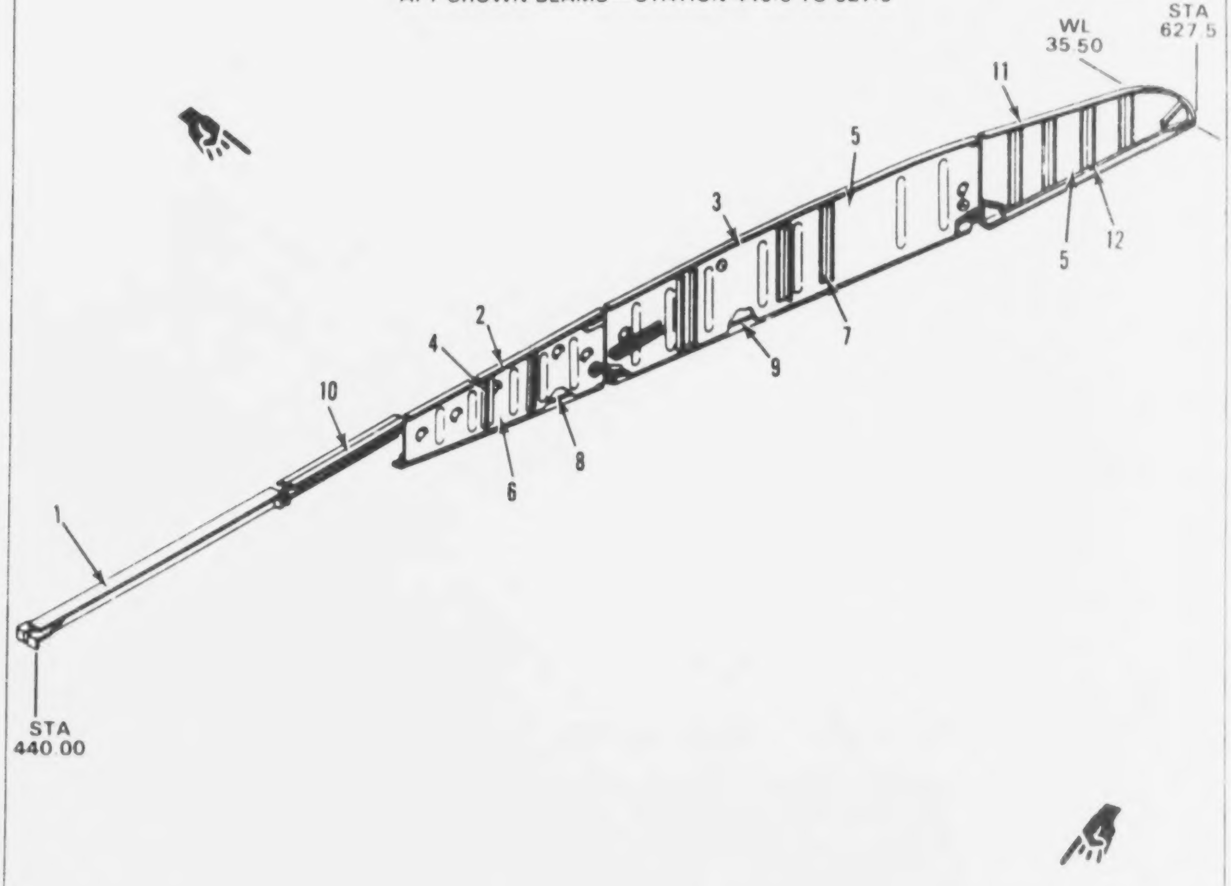
2-24 REPAIR BEAMS (Continued) 2-24

AFT FUSELAGE STRUCTURE ASSEMBLY
AFT CROWN BEAMS—STATION 440.0 TO 627.5



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	STRINGER	AND10136-1406 7075-T6	0.100 4130	NOTE C.
2	CAP	0.050 7075-T6 BARE	0.063 7075-T6 BARE	NOTE C.
3	CAP	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE C.
4	ANGLE	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	NOTE C.
5	WEB	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD	2-13
6	WEB	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD	2-13
7	ANGLE	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE C.
8	CAP	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C.
9	CAP	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE C.
10	ANGLE	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE C.
11	CAP	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE C.
12	STIFFENER	VS70504-2 7075-T6	0.032 7075-T6 CLAD	2-29

NOTES

A. ALL DIMENSIONS SHOWN IN INCHES
B. THE LEFT-HAND BEAM IS SHOWN. REPAIR MATERIALS AND REFERENCED REPAIR FIGURES ARE THE SAME FOR THE RIGHT-HAND BEAM
C. TM 55-1500-204-25/1

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Beam Repairs — Aft Fuselage and Pylon Structure Assembly
(Sheet 1 of 6)

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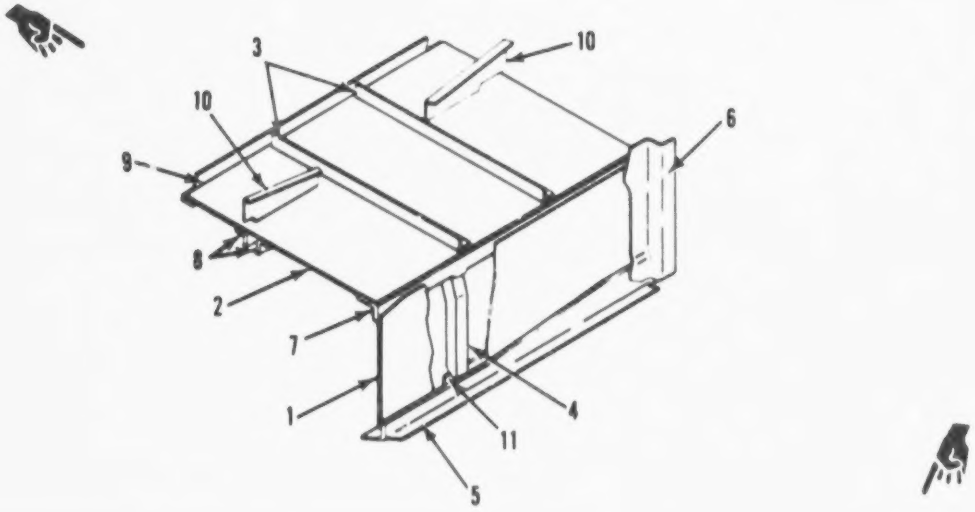
AFT FUSELAGE STRUCTURE ASSEMBLY
AFT LANDING GEAR DRAG BEAM—STATION 460 TO 482



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
2	WEB	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	2-13
3	STIFFENER	AND10133-0603 7075-T6	0.125 4130	2-29
4	STIFFENER	AND10133-0602 7075-T6	0.100 4130	2-29
5	CAP	VS90533 7075-T6	NOTE B.	NOTE C.
6	ZEE	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE C.
7	CAP	BAC1514-157 7075-T6	NOTE B.	NOTE C.
8	CAP	ALCOA 29222 7075-T6	0.200 4130	NOTE C.
9	CAP	VS90305 7075-T6	0.063 4130	—
10	BRACKET	0.063 2024-T3 CLAD	0.071 2024-T3 CLAD	NOTE C.
11	STIFFENER	VS90533 7075-T6	NOTE B.	2-29

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REPAIR USING MATERIAL SAME AS ORIGINAL
C. TM 55-1500-204-25/1

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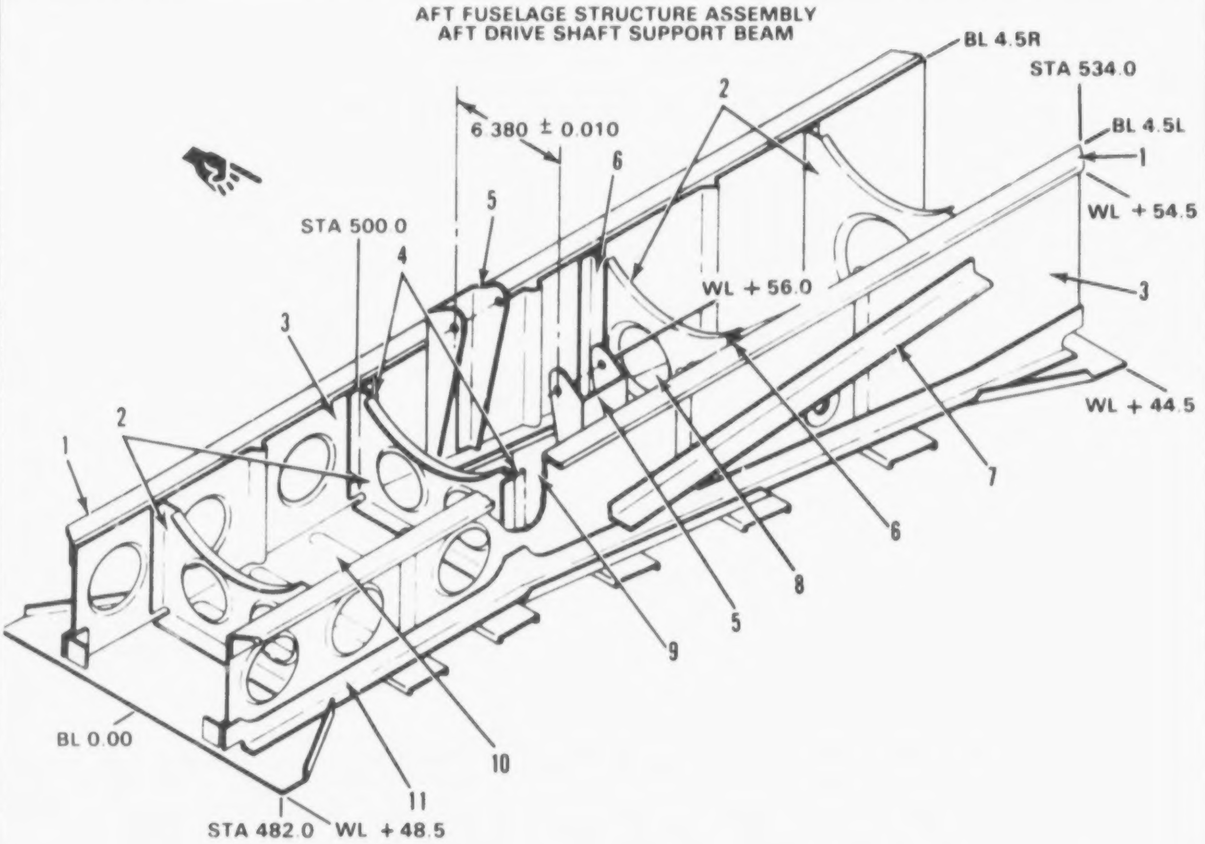
2-24 REPAIR BEAMS (Continued) 2-24


AFT FUSELAGE STRUCTURE ASSEMBLY
AFT DRIVE SHAFT SUPPORT BEAM
BL 4.5R
STA 534.0
BL 4.5L
1
WL +54.5
2
6.380 ± 0.010
6
5
STA 500.0
4
3
WL +56.0
3
WL +44.5
2
1
7
6
8
5
9
10
BL 0.00
11
STA 482.0
WL +48.5

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	AND10135-1004 7075-T6	0.090 4130	NOTE E.
2	GUSSET	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	NOTE E.
3	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
4	ANGLE	ALCOA 13637 7075-T6	NOTE B.	—
5	BRACKET	0.090 2024-T4 CLAD	NOTE C.	—
6	ANGLE	ALCOA 13637 7075-T6	0.063 4130	NOTE E.
7	ANGLE	ALCOA 52735 7075-T6	0.063 4130	NOTE E.
8	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
9	DOOR	0.040 AZ31B-H24 MAG	NOTE D.	—
10	WEB	0.025 2024-T4 CLAD	0.032 2024-T4 CLAD	2-13
11	CAP	AND10134-1401 7075-T6	0.100 4130	NOTE E.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REPLACE WITH NEW ANGLE FABRICATED FROM AND10133-1201 EXTRUSION. SEE SHEET 4 THIS FIGURE
C. REPLACE WITH NEW BRACKET 145S3306-7 LH OR -8 RH
D. REPLACE WITH NEW DOOR 114S3365-35
E. TM 55-1500-204-25/1

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Beam Repairs — Aft Fuselage and Pylon Structure Assembly (Sheet 3 of 6)

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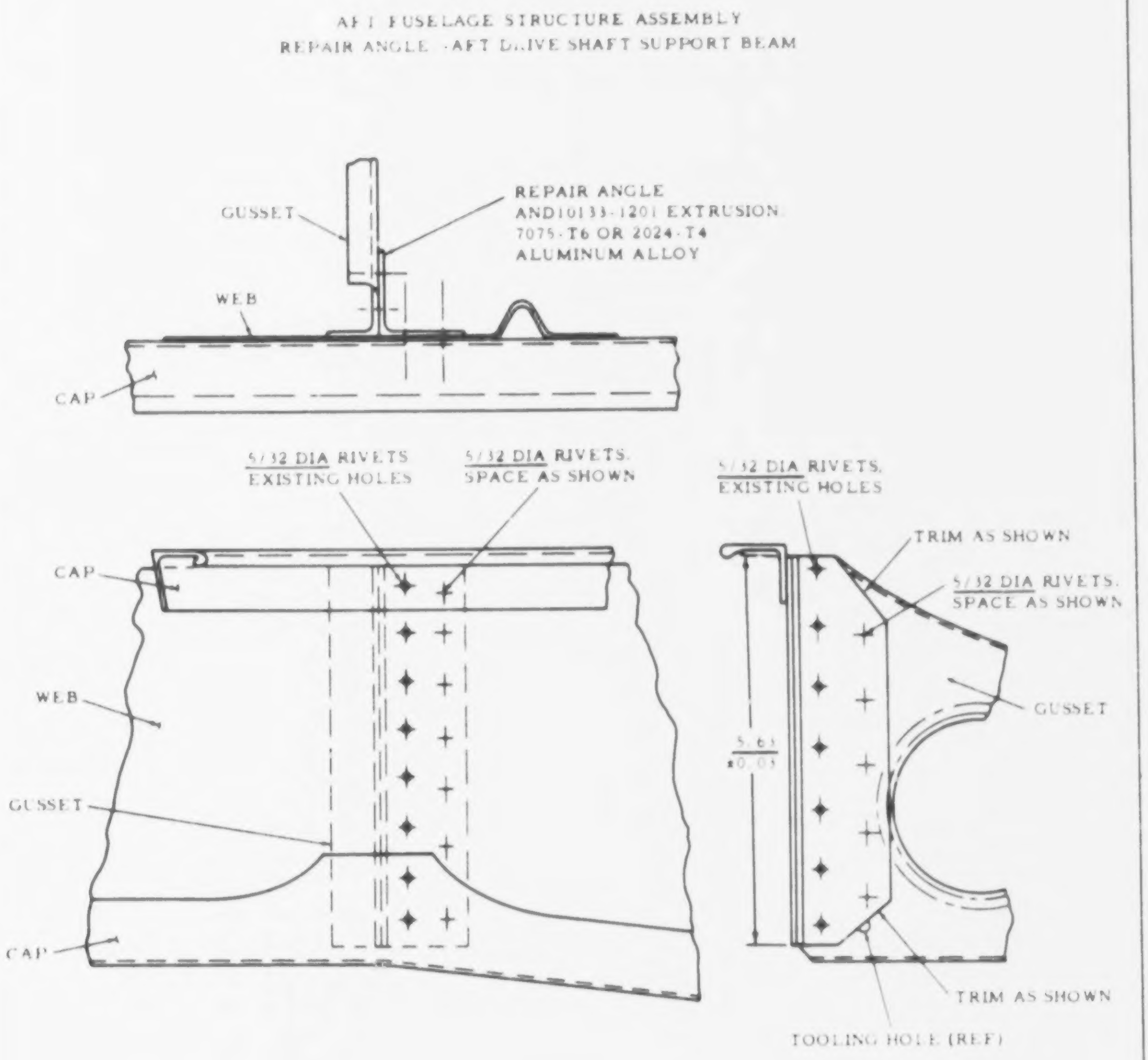
2-24 REPAIR BEAMS (Continued)


AFT FUSELAGE STRUCTURE ASSEMBLY
REPAIR ANGLE - AFT DRIVE SHAFT SUPPORT BEAM
GUSSET
REPAIR ANGLE
AND10133-1201 EXTRUSION
7075-T6 OR 2024-T4
ALUMINUM ALLOY
WEB
CAP
5/32 DIA RIVETS
EXISTING HOLES
5/32 DIA RIVETS,
SPACE AS SHOWN
CAP
WEB
GUSSET
CAP
5/32 DIA RIVETS,
EXISTING HOLES
TRIM AS SHOWN
5/32 DIA RIVETS,
SPACE AS SHOWN
GUSSET
5.63
±0.03
TRIM AS SHOWN
TOOLING HOLE (REF)

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. LH REPAIR ANGLE SHOWN, RH OPPOSITE
C. REMOVE ALL BURRS AND SHARP EDGES

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Beam Repairs — Aft Fuselage and Pylon Structure Assembly (Sheet 4 of 6)

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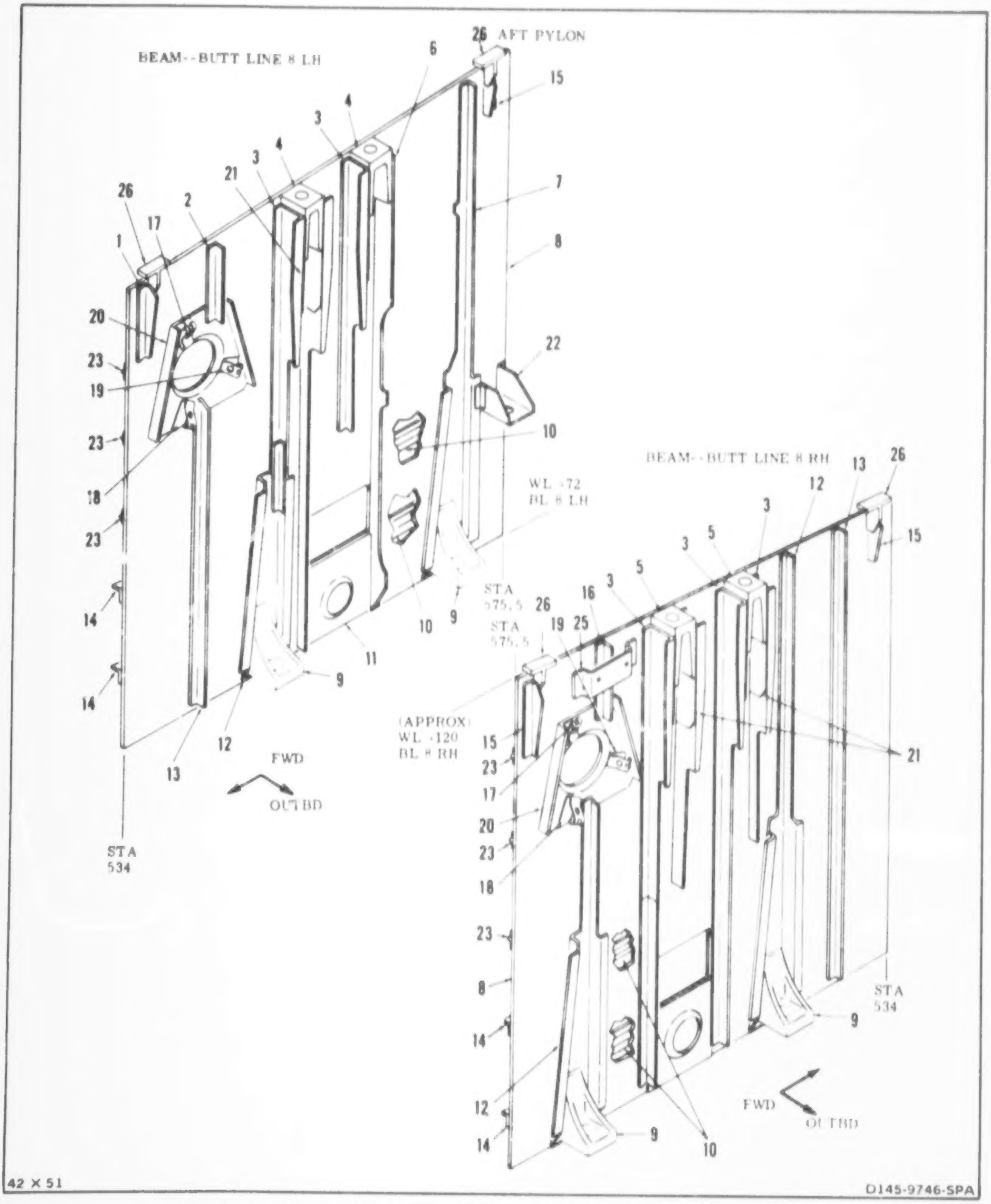
2-24 REPAIR BEAMS (Continued) 2-24


BEAM--BUTT LINE 8 LH
26 AFT PYLON
6
15
4
3
4
3
21
3
7
26
2
17
8
1
20
22
23
19
23
10
18
WL +72
BL 8 LH
23
14
14
10
9
STA
575.5
11
9
12
13
FWD
OUTBD
STA
534
BEAM--BUTT LINE 8 RH
13
26
12
3
15
5
3
5
3
16
26
STA
575.5
19 25
(APPROX)
WL +120
BL 8 RH
15
23
17
20
23
18
21
23
8
14
12
14
9
10
STA
534
9
FWD
OUTBD

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Beam Repairs — Aft Fuselage and Pylon Structure Assembly
(Sheet 5 of 6)

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2-24 REPAIR BEAMS (Continued) 2-24

AFT PYLON
BEAMS — BUTT LINE 8 LH AND RH

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	0 032 7075 T6 BARE	0 040 7075 T6 CLAD	NOTE G
2	ANGLE	0 050 2024 T4 CLAD	0 050 4130	NOTE G
3	CHANNEL	0 063 301 CRES 1 2H	0 050 7075 T6 CLAD	2 13
4	SUPPORT	2014 T6 FORGING	NOTE B	
5	SUPPORT	2014 T6 FORGING	NOTE D	
6	ANGLE	0 063 301 CRES 1 2H	0 071 4130	NOTE G
7	HAT	0 063 2024 T4 CLAD	0 053 2024 T3 CLAD	NOTE G
8	WEB	0 063 2024 T3 CLAD	0 063 2024 T3 CLAD	2 13
9	ATTACHMENT	2014 T6 FORGING	NOTE C	
10	STIFFENER	0 025 301 CRES 1 2H	0 032 301 CRES 1 2H	2 29
11	WEB	0 063 7075 T6 BARE	0 063 7075 T6 CLAD	2 13
12	HAT	0 063 2024 T4 CLAD	0 063 2024 T3 CLAD	NOTE G
13	STIFFENER	ALCOA 22477 7075 T6	0 050 4130	2 29
14	ANGLE	ALCOA 67580 7075 T6	0 063 4130	NOTE G
15	ANGLE	0 040 7075 T6 BARE	0 050 7075 T6 CLAD	NOTE G
16	ANGLE	0 050 2024 T4 BARE	0 050 2024 T3 CLAD	NOTE G
17	BRACKET	114SK180 4	NOTE F	
18	BRACKET	114SK180 3	NOTE F	
19	BRACKET	114SK180 2	NOTE F	
20	DOUBLER	0 050 7075 T6 BARE	0 050 7075 T6 CLAD	NOTE G
21	STRAP	0 032 301 CRES 1 2H	0 040 301 CRES 1 2H	NOTE G
22	BRACKET	0 050 2024 T4 CLAD	0 050 2024 T3 CLAD	NOTE G
23	STIFFENER	0 032 2024 T4 CLAD	0 040 2024 T3 CLAD	2 29
24	PAD	AN8031 10 013	NOTE E	
25	SUPPORT	0 050 2024 T3 CLAD	0 050 2024 T3	NOTE G
26	TEE	ALCOA 37289 7075 T6	0 071 4130	NOTE G

NOTES
- A All dimensions are in inches
- B For damage other than minor replace with new support 114S4832 3 fwd and 4 aft
- C For damage other than minor replace with new attachment 114S4805 4
  Use locating fixture 114G1247 1 replace attachments one at a time to prevent mislocation
- D For damage other than minor replace with new support 114S4832 3
- E Replace grommet or pad with new pad AN8031 10 013
  Bond pad to bracket Refer to Task 2 310
- F For damage other than minor replace with new bracket 114S4118 220
  Cut and drill bracket as required for installation
- G TM 55 1500 204 25 1

Beam Repairs — Aft Fuselage and Pylon Structure Assembly
(Sheet 6 of 6)

FOLLOW-ON MAINTENANCE
As required

END OF TASK

2-25 BEAMS MINOR DAMAGE 2-25

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-24
Task 2-6

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Beam minor damage can exist as is or be fixed by an easy method as burnishing nicks and scratches, and removal of small damaged areas (Task 2-24 and 2-6).
2. Damage must clear bolts, rivets, and radiuses 3/4-inch minimum. Damage shall not affect more than 10 percent of material thickness after rework.
3. For examples of damage to internal webs, formed parts, and extruded parts, refer to Task 2-6.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-26 BEAMS REPARABLE DAMAGE 2-26

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-7
Task 2-24

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1 Damage more than minor but not affecting more than 25 percent of cross section between attaching members of web shall be patched. However, enough clearance must be maintained from edge members to allow proper rivet spacing (Task 2-24).

2 Damage which affects more than 25 percent of cross section of web shall be repaired by insertion (Task 2-7).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

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Page 2-138 deleted.

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2-28 REPAIR STIFFENERS — GENERAL INFORMATION 2-28

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Others As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-29
Task 2-30
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Skin stiffeners are located on bottom panel and bottom side panel. Transverse stiffeners, except around rescue hatch cutout, extend full-width from hinge to hinge. They are Z-sections formed of 7075-T6 clad aluminum alloy. Stiffeners around rescue hatch cutout are extruded from 7075-T6 aluminum alloy. Longitudinal stiffeners on bottom panel are sections of Alcoa 83264 or AND 10136-2006. Transverse stiffeners are sections of Alcoa 83264 or 55794. Stiffeners on bottom side panels are section of AND 10134-1005, AND 10134-1003, Alcoa 67580, 22477.
2. Repairs are classified as minor damage (Task 2-29), or major damage (Task 2-30).
3. Replace stiffeners that have extensive damage. This includes loss of more than one-half of member or several damaged areas. (Refer to TM 55-1500-204-25/1.)

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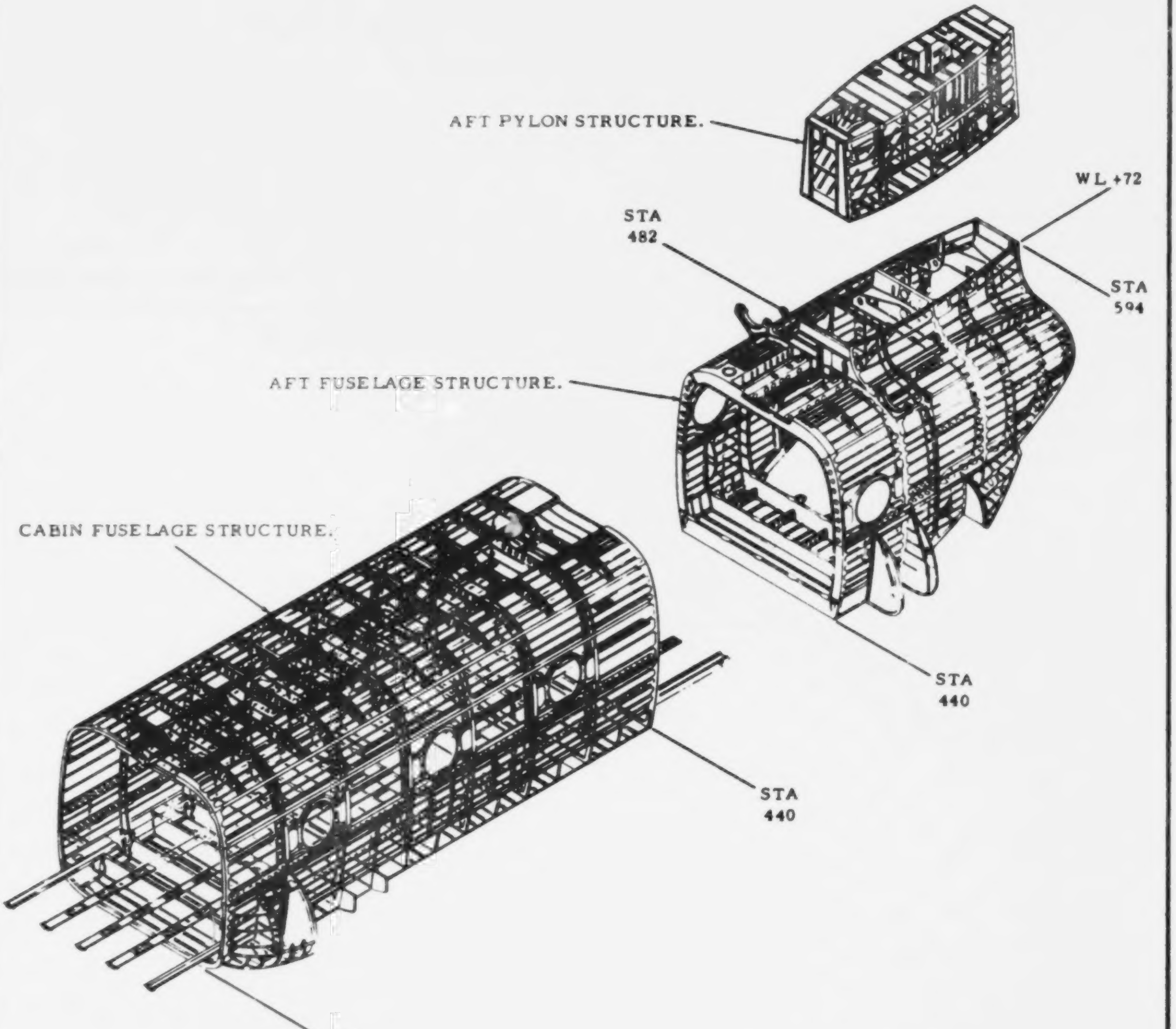
2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28


AFT PYLON STRUCTURE.
WL +72
STA 482
STA 594
AFT FUSELAGE STRUCTURE.
CABIN FUSELAGE STRUCTURE.
STA 440
STA 440
STA 160

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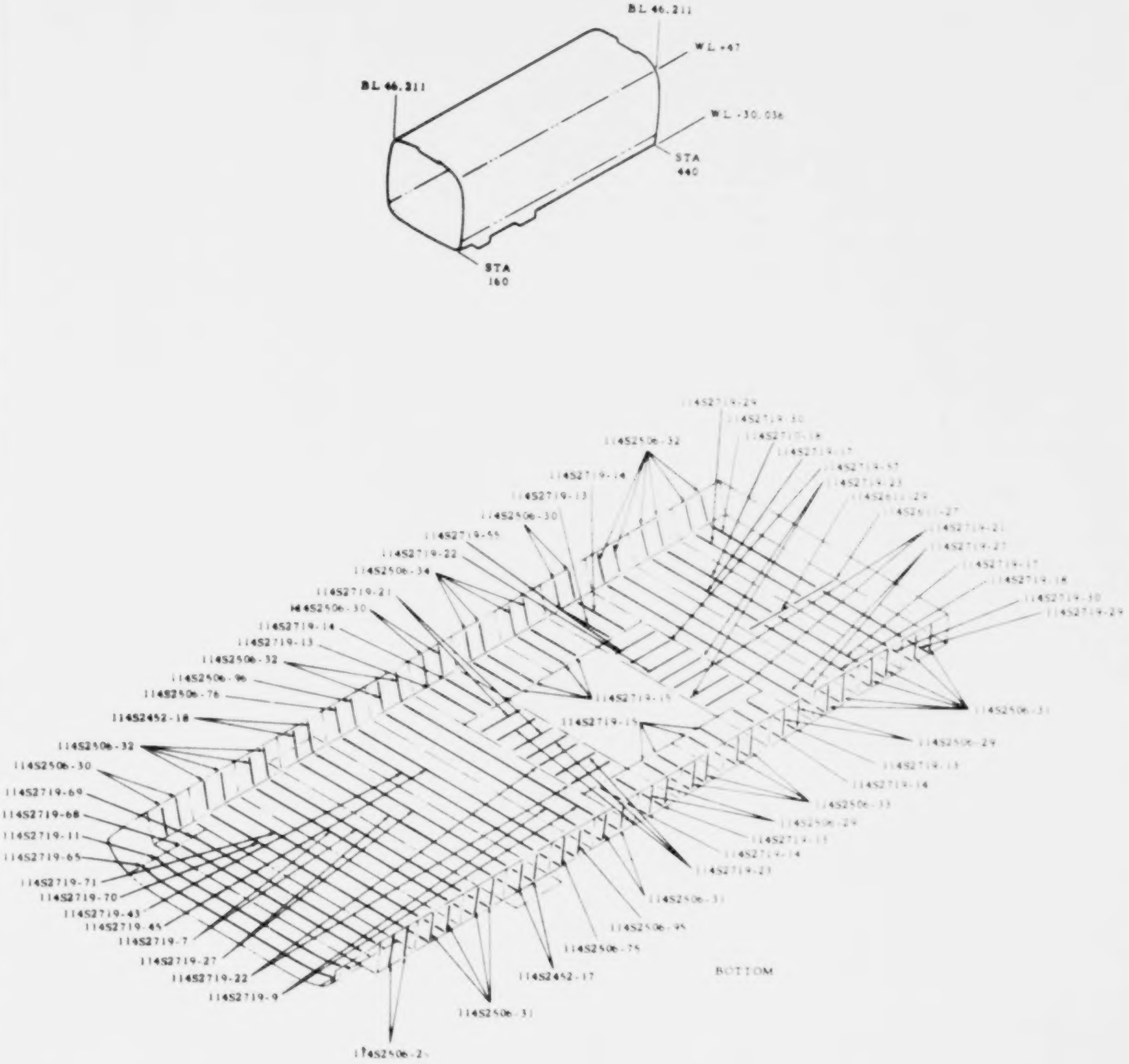
2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28


BL 46.211
WL +47
BL 46.211
WL -30.036
STA 440
STA 160
114S2719-29
114S2719-30
114S2719-18
114S2506-32
114S2719-17
114S2719-57
114S2719-14
114S2719-23
114S2719-13
114S2611-29
114S2506-30
114S2611-27
114S2719-55
114S2719-21
114S2719-22
114S2719-27
114S2506-34
114S2719-17
114S2719-18
114S2719-21
114S2719-30
114S2506-30
114S2719-29
114S2719-14
114S2719-13
114S2506-32
114S2506-96
114S2506-76
114S2719-15
114S2506-31
114S2452-18
114S2719-15
114S2506-29
114S2506-32
114S2719-13
114S2506-30
114S2719-14
114S2719-69
114S2506-33
114S2719-68
114S2506-29
114S2719-11
114S2719-13
114S2719-14
114S2719-65
114S2719-23
114S2719-71
114S2719-70
114S2506-31
114S2719-43
114S2719-45
114S2506-95
114S2719-7
114S2506-75
114S2719-27
BOTTOM
114S2719-22
114S2452-17
114S2719-9
114S2506-31
114S2506-2

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2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28

STIFFENERS — CABIN FUSELAGE STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
	-31 THRU -42	246 5	114S2452-17	AND10133-0601	7075-T6	0 063	4130
	-31 THRU -42	253 5	114S2452-17	AND10133-0601	7075-T6	0 063	4130
	-31 THRU -42	246 5	114S2452-18	AND10133-0601	7075-T6	0 063	4130
	-31 THRU -42	253 5	114S2452-18	AND10133-0601	7075-T6	0 063	4130
	-30 THRU -41	186 5	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	193	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	306 5	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	313	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-31 THRU -41	366 5	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	373	114S2506-29	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	186 5	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	193	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	306 5	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	313	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	366 5	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	373	114S2506-30	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	206 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	213	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	226 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	233	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	286 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	293	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	386 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	393	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	406 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	413	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	426 5	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	433	114S2506-31	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	206 5	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	213	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	226 6	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	233	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	286 5	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	293	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	386 5	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	393	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	406 5	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	413	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	426 5	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -41	433	114S2506-32	ALCOA 22477	7075-T6	0 040	4130
	-30 THRU -42	326 5	114S2506-33	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	333	114S2506-33	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	346 5	114S2506-33	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	353	114S2506-33	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	326 5	114S2506-34	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	333	114S2506-34	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	346 5	114S2506-34	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -42	353	114S2506-34	AND10134-1005	7075-T6	0 063	4130
	-30 THRU -40	266 5	114S2506-75	AND10134-1003	7075-T6	0 063	4130
	-30 THRU -40	266 5	114S2506-76	AND10134-1003	7075-T6	0 063	4130
	-30 THRU -40	271	114S2506-95	AND10134-1003	7075-T6	0 063	4130
	-30 THRU -40	271	114S2506-96	AND10134-1003	7075-T6	0 063	4130
0		420 THRU 440	114S2611-27	VS90302	7075-T6	0 125	4130
0		400 THRU 420	114S2611-29	VS90316	7075-T6	0 125	4130
48R THRU 48L		226 5	114S2719-7	0 25	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		233 5	114S2719-7	0 25	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		285 7	114S2719-9	0 25	7075-T6 CLAD	0 032	7075-T6
48R THRU 48L		294 3	114S2719-9	0 25	7075-T6 CLAD	0 032	7075-T6
45R THRU 45L		166 5	114S2719-11	0 25	7075-T6 CLAD	0 032	7075-T6
28R THRU 48R		306 5	114S2719-13	ALCOA 83264	7075-T6	0 050	4130
28L THRU 48L		313 5	114S2719-13	ALCOA 83264	7075-T6	0 050	4130
28R THRU 48R		366 5	114S2719-13	ALCOA 83264	7075-T6	0 050	4130
28R THRU 48R		373 5	114S2719-13	ALCOA 83264	7075-T6	0 050	4130

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2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28

STIFFENERS — CABIN FUSELAGE STRUCTURE

LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
0		200 THRU 280	145S2512-2	0.100	7075-T6 BARE	0.125	7075-T6
0		375 THRU 440	145S2512-3	0.100	7075-T6 BARE	0.125	7075-T6
2L THRU 18L			145S2624-1	0.063	7075-T6 CLAD	0.071	7075-T6
7L THRU 17L			145S2624-2	0.063	7075-T6 CLAD	0.071	7075-T6
28L THRU 48L		306.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		313.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28L THRU 48L		366.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		373.5	114S2719-14	ALCOA 83264	7075-T6	0.050	4130
28R THRU 48R		326.3	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		326.3	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		332.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		332.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		346.6	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		346.6	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28R THRU 48R		352.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
28L THRU 48L		352.9	114S2719-15	ALCOA 55794	7075-T6	0.080	4130
0 THRU 48R		406.5	114S2719-17	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		413.5	114S2719-17	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		406.5	114S2719-18	0.32	7075-T6 CLAD	0.040	7075-T6
0 THRU 48R		413.5	114S2719-18	0.32	7075-T6 CLAD	0.040	7075-T6
7.2R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
20.8R		300 THRU 320	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
7.2L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
20.8L		360 THRU 380	114S2719-21	ALCOA 83264	7075-T6	0.050	4130
7.2L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
20.8L		300 THRU 320	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
7.2R		360 THRU 380	114S2719-22	ALCOA 83264	7075-T6	0.050	4130
13.7R		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.050	4130
0		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.125	4130
13.7L		300 THRU 320	114S2719-23	AND10136-2006	7075-T6	0.125	4130
0		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0.125	4130
13.7L		360 THRU 380	114S2719-23	AND10136-2006	7075-T6	0.125	4130
48R THRU 48L		246.5	114S2719-27	0.025	7075-T6 CLAD	0.125	4130
48R THRU 48L		253.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		386.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		393.5	114S2719-27	0.025	7075-T6 CLAD	0.032	7075-T6
0 THRU 48R		426.5	145S2719-29	0.032	7075-T6 CLAD	0.032	7075-T6
0 THRU 48L		433.5	145S2719-29	0.032	7075-T6 CLAD	0.040	7075-T6
0 THRU 48L		426.5	145S2719-30	0.032	7075-T6 CLAD	0.040	7075-T6
0 THRU 48R		433.5	145S2719-30	0.032	7075-T6 CLAD	0.040	7075-T6
48R THRU 48L		266.3	114S2719-33	0.025	7075-T6 CLAD	0.040	7075-T6
48R THRU 48L		273.6	114S2719-33	0.025	7075-T6 CLAD	0.032	7075-T6
20.8R		360 THRU 380	114S2719-55	ALCOA 22991	7075-T6	0.032	7075-T6
13.7R		360 THRU 380	114S2719-57	AND10136-2006	7075-T6	0.063	7075-T6
45R THRU 45L		173.5	114S2719-63	0.025	7075-T6 CLAD	0.125	4130
45R THRU 45L		185.8	114S2719-68	0.025	7075-T6 CLAD	0.032	7075-T6
45R THRU 45L		193.1	114S2719-69	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		206.5	114S2719-70	0.025	7075-T6 CLAD	0.032	7075-T6
48R THRU 48L		213.5	114S2719-71	0.025	7075-T6 CLAD	0.032	7075-T6

NOTES: A All dimensions are in inches
B All stiffeners are identified by part number
C Replace with a section corresponding to the original

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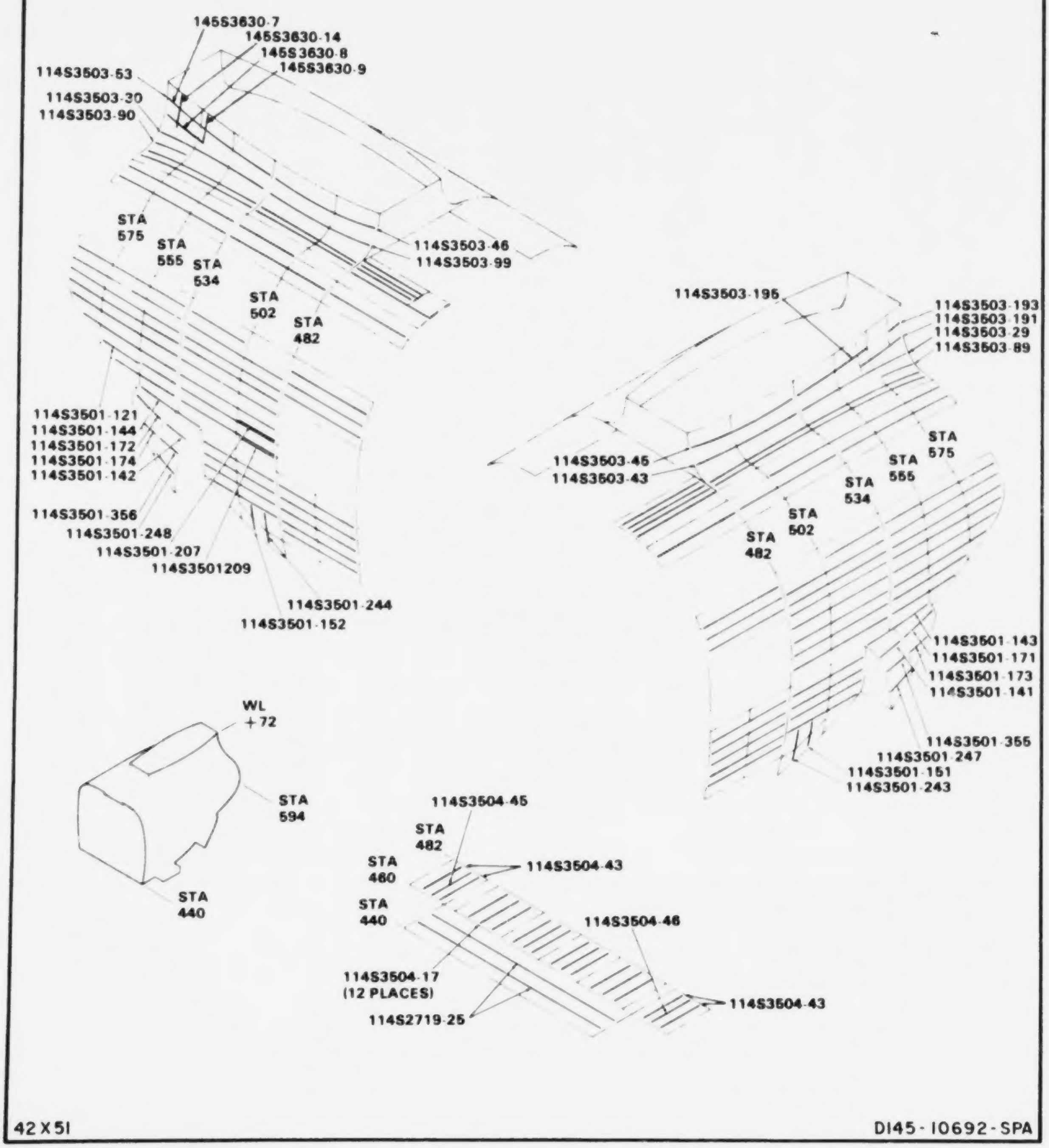
2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28

AFT FUSELAGE STRUCTURE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STA 534
STA 502
STA 482
114S3503-46
114S3503-99
114S3501-121
114S3501-144
114S3501-172
114S3501-174
114S3501-142
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114S3501209
114S3501-244
114S3501-152
114S3503-195
114S3503-193
114S3503-191
114S3503-29
114S3503-89
114S3503-45
114S3503-43
STA 575
STA 555
STA 534
STA 502
STA 482
114S3501-143
114S3501-171
114S3501-173
114S3501-141
114S3501-355
114S3501-247
114S3501-151
114S3501-243
WL +72
STA 594
STA 440
114S3504-45
STA 482
STA 460
STA 440
114S3504-43
114S3504-46
114S3504-17 (12 PLACES)
114S2719-25
114S3504-43

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2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28

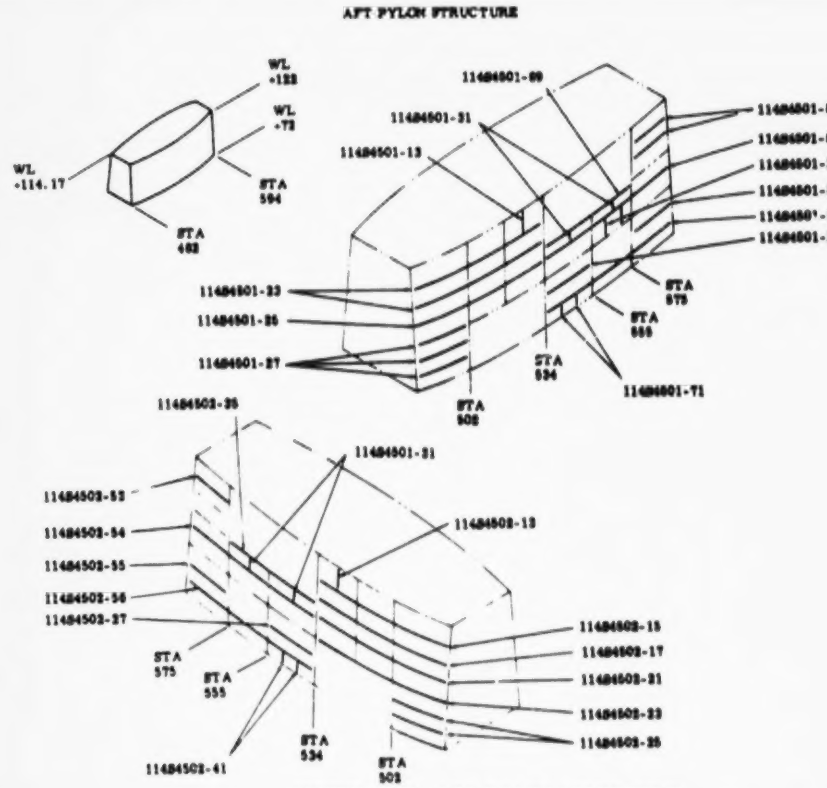
STIFFENERS — AFT FUSELAGE STRUCTURE

LOCATION			PART NO	ORIGINAL MATERIAL		REPAIR MATERIAL	
BL	WL	STATION					
48R THRU 48L		446 6	114S2719-25	0 040	7075-T6 CLAD	0 050	7075-T6
48R THRU 48L		453 6	114S2719-25	0 040	7075-T6 CLAD	0 050	7075-T6
	-20 THRU -33	496 3	114S3501-151	ALCOA 67580	7075-T6	0 050	4130
	-20 THRU -33	496 3	114S3501-152	ALCOA 67580	7075-T6	0 050	4130
	+ 12	482 THRU 502	114S3501-207	ALCOA 83264	7075-T6	0 050	4130
	+ 4 5	482 THRU 502	114S3501-209	0 063	7075-T6 CLAD	0 071	7075-T6
	-20 THRU -36	489 2	114S3501-243	AND10134-1401	7075-T6	0 100	4130
	-20 THRU -36	489 2	114S3501-244	AND10134-1401	7075-T6	0 100	4130
	+ 15	520 THRU 534	114S3501-247	0 063	7075-T6 CLAD	0 071	7075-T6
	+ 15	520 THRU 534	114S3501-248	0 063	7075-T6 CLAD	0 071	7075-T6
5R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
10R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
15R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
26R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
32R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
38R		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
5L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
10L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
15L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
26L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
32L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
38L		460 THRU 482	114S3504-17	ALCOA 67580	7075-T6	0 050	4130
53 1R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
53 1L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
68 2R		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
68 2L		460 THRU 482	114S3504-43	BAC1503-100019	7075-T6	0 160	4130
57L		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0 125	4130
57R		460 THRU 482	114S3504-45	AND10137-2601	7075-T6	0 125	4130
			145S3630-7	ALCOA 83264	2024-T4	0 063	2024-T4
		575 THRU 592	145S3630-8	0 063	2024-T4 BARE	0 071	2024-T4
		62 THRU 72	145S3630-9	0 050	2024-T4 BARE	0 063	2024-T4
		60 THRU 72	145S3630-14	0 050	2024-T4 BARE	0 063	2024-T4

NOTES:
A All dimensions are in inches
B All stiffeners are identified by part number

GO TO NEXT PAGE

2-28 REPAIR STIFFENERS — GENERAL INFORMATION (Continued) 2-28


AFT PYLON STRUCTURE
WL +122
WL +72
WL +114.17
STA 594
STA 482
114S4501-69
114S4501-31
114S4501-13
114S4501-81
114S4501-80
114S4501-39
114S4501-61
114S4501-63
114S4501-21
114S4501-23
114S4501-25
114S4501-27
STA 575
STA 555
STA 534
STA 502
114S4501-71
114S4502-25
114S4501-31
114S4502-53
114S4502-54
114S4502-55
114S4502-56
114S4502-27
114S4502-13
114S4502-15
114S4502-17
114S4502-21
114S4502-23
114S4502-25
STA 575
STA 555
STA 534
STA 502
114S4502-41

STIFFENERS--AFT PYLON STRUCTURE

LOCATION			PART NO.	ORIGINAL MATERIAL	REPAIR MATERIAL
BL	WL	STATION			
	+109 THRU +116	526	114S4501-13	ALCOA 67580 7075-T6	0.050 4130
(LH SIDE)	+ 97 THRU +100	544.5	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(LH SIDE)	+ 97 THRU +100	564	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(RH SIDE)	+ 97 THRU +100	544.5	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
(RH SIDE)	+ 97 THRU +100	564	114S4501-31	ALCOA 22477 7075-T6	0.040 4130
	+ 90 THRU + 97	561	114S4501-39	VS70504-4 7075-T6	0.040 7075-T6
	+ 90 THRU + 97	571	114S4501-39	VS70504-4 7075-T6	0.040 7075-T6
	+ 72 THRU + 78	540.4	114S4501-71	ALCOA 22477 7075-T6	0.040 4130
	+ 72 THRU + 78	547.9	114S4501-71	ALCOA 22477 7075-T6	0.040 4130
	+109 THRU +116	526	114S4502-13	ALCOA 67580 7075-T6	0.050 4130
	+ 72 THRU + 78	540.4	114S4502-41	ALCOA 22477 7075-T6	0.040 4130
	+ 72 THRU + 78	547.9	114S4502-41	ALCOA 22477 7075-T6	0.040 4130

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. UNNUMBERED STRINGERS AND ALL STIFFENERS ARE IDENTIFIED BY PART NUMBER

42X51 D145-10693-SPA

FOLLOW-ON MAINTENANCE:
None

END OF TASK

2-29 REPAIR STIFFENERS — MINOR DAMAGE 2-29

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Technical Inspector's Tool Kit,
NSN 5180-00-323-5114

Materials:
Zinc Chromate Primer (E291)
Gloves (E186)
Other Materials As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-336
Task 2-28
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

GO TO NEXT PAGE

2-29 REPAIR STIFFENERS — MINOR DAMAGE (Continued) 2-29

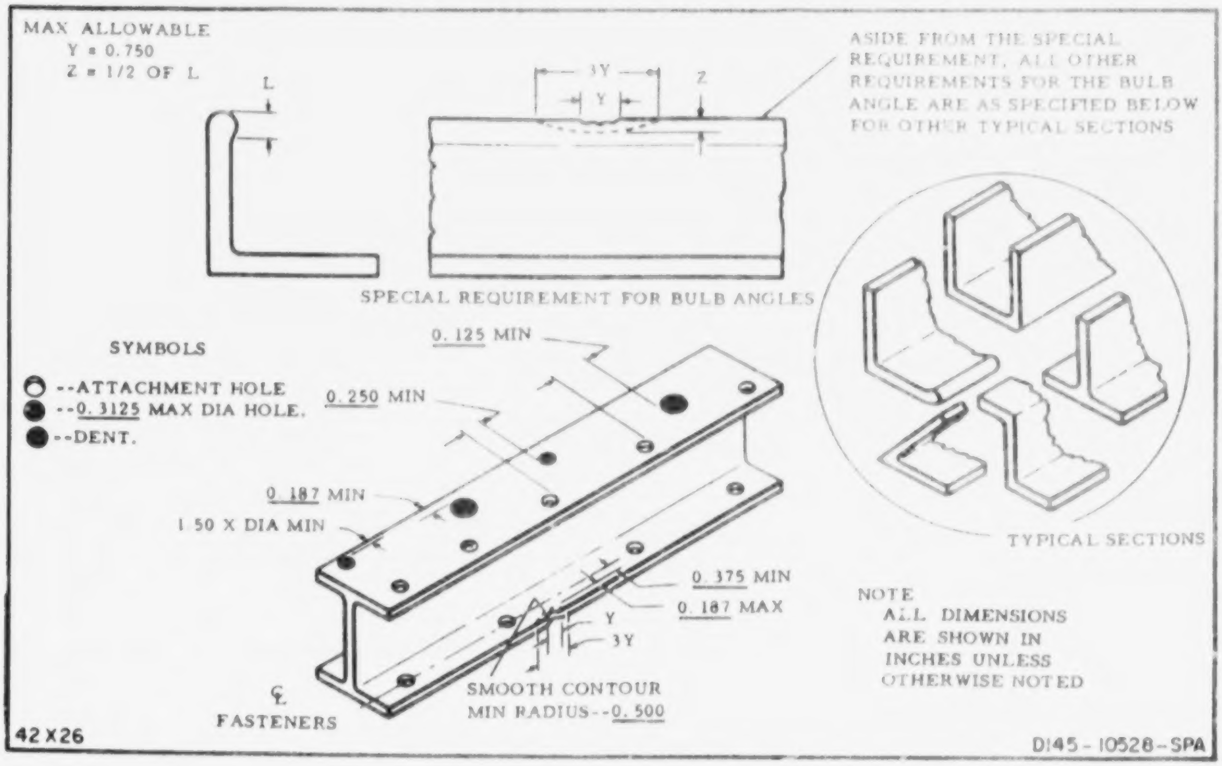
1. Repair minor damage to webs as follows (Task 2-28) and (TM 55-1500-204-25/1):
   a. Remove small dents.
   b. Stop drill minor cracks.
   c. Burnish nicks, scratches and small damage areas.
   d. Plug holes in webs. Use tight fitting rivet.
2. Repair minor damage to extruded parts of stiffeners (Task 2-336).

WARNING

Zinc Chromate Primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

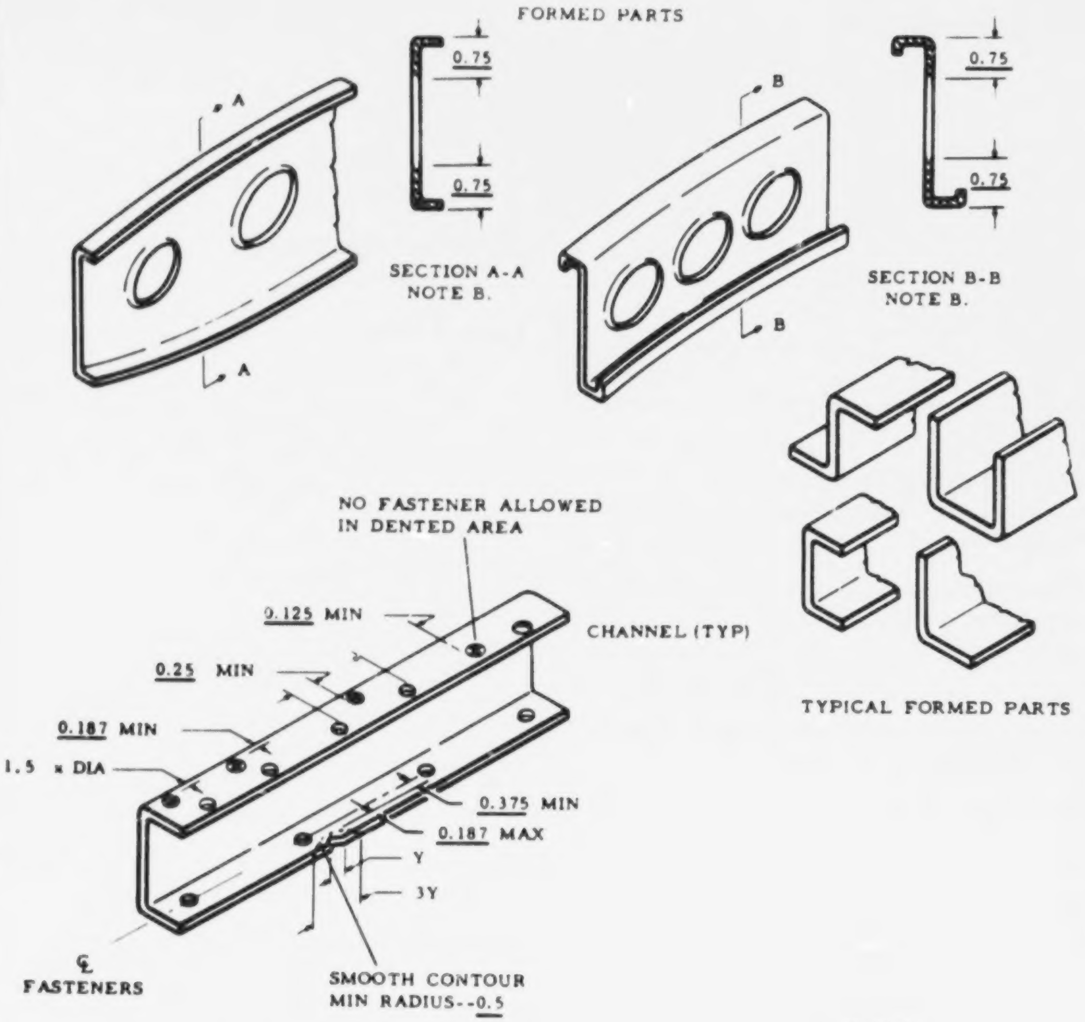
3. Retouch repaired area. Use two coats of zinc chromate primer (E291). Use gloves (E186).

INSPECT


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SPECIAL REQUIREMENT FOR BULB ANGLES
SYMBOLS
○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
● --DENT.
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
SMOOTH CONTOUR MIN RADIUS--0.500
℄ FASTENERS
TYPICAL SECTIONS
NOTE
ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED
42X26
D145-10528-SPA

GO TO NEXT PAGE

2-29 REPAIR STIFFENERS — MINOR DAMAGE (Continued) 2-29


FORMED PARTS
A
0.75
0.75
SECTION A-A
NOTE B.
A
B
0.75
0.75
SECTION B-B
NOTE B.
B
TYPICAL FORMED PARTS
NO FASTENER ALLOWED IN DENTED AREA
0.125 MIN
CHANNEL (TYP)
0.25 MIN
0.187 MIN
1.5 x DIA
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.5

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
⊗ --DENT.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS NEGLIGIBLE OR NOT NEGLIGIBLE ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS NEGLIGIBLE WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE

42X51

D145-10529-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-30 REPAIR STIFFENERS — MAJOR DAMAGE (AVIM) 2-30

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-28
TM 55-1500-204-25/1
Task 2-336

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair damage to stiffeners, greater than minor damage, as follows (Task 2-28 and TM 55-1500-204-25/1):
   a. Patch stiffeners having damage that affects only a single formed flange or less than one-half or cross-section.
   b. Repair damage that affects more than one flange, and one-half, or more, of web cross-section by insertion.
2. Refer to Task 2-336 for extrusion parts.

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish as required (Task 2-346).

END OF TASK

Task 2-31 deleted.
Page 2-151/(2-152 blank) deleted.

SECTION III

FUSELAGE

2-32 REPAIR RIGHT LOWER LONGERON (AVIM) 2-32

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Torque Wrench, 30 to 150 Inch-Pounds

Materials:
Sheet Steel (E370) or (E371)
Mylar Tape (E389)
Zinc Chromate Primer (E291)
Gloves (E186)

Parts:
Shim Stock, 0.020-Inch
Rivets

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-205
Task 2-351
Task 2-324
Task 2-336

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Lower Cabin Door Removed (Task 2-149)
Cabin Door Hinge Fittings Removed (Task 2-153)
Forward Right Floor Panel Assembly Removed (Task 2-204)
Remove Forward Door Coamings and Brackets (Task 2-76)

General Safety Instructions:

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

---

1. Remove door sill at bottom of door opening.
2. Remove two bolts, washers, and nuts that join upper and lower tension fittings at sta 120, wl 30, and bl 48 r.
3. Remove tiedown ring and adapter assembly, and tiedown receptacle at sta 124 bl 44 r. (Task 2-205.)
4. If needed for access, unfasten and peel back skin at skin laps along sta 120 and wl 30.
5. Check areas around cracked longeron for damage. Replace the longeron if a major portion of the longeron is damaged or if there are many isolated damages (Task 2-336).
6. Repair longeron horizontal flange as follows:
   a. Unfasten and raise floor doubler from tiedown beam. Begin at sta 120. Work aft until doubler can be raised enough for access to floor plate.
   b. Remove floor plate from horizontal flange of longeron. Remove rivets. Begin at sta 120. Work aft. Remove at least 16 rivets.

CAUTION

Do not damage support structure under floor plate.

   c. Cut floor plate at sta 126.4 between outboard edge and bl 46.25 r.

GO TO NEXT PAGE

2-32 REPAIR RIGHT LOWER LONGERON (AVIM) (Continued) 2-32

d. Remove cut part of floor plate from sta 119 aft to cut.

e. Make repair angle. Use sheet steel (E370) 1/2 hard, or sheet steel (E371).

NOTE

Finished angle size may vary because of location.

Use stock size 18.4 inches long and 4.7-inches wide. Shape repair angle same as removed section of floor plate except in area shown.

f. Fit angle to longeron. Locate 16 holes aft of crack and 8 holes forward. Locate 4 holes for rivets forward of sta 120. Locate three holes for rivets where repair angle overlaps floor plate. Locate two tension fitting hardward bolt holes.

g. Drill and deburr holes as required.

h. Apply dissimilar metal protection to repair angle (Task 2-351).

i. Apply mylar tapes (E389) (Task 2-324).

j. Position angle on longeron.

k. Install rivets wet. Use zinc chromate primer (E291). Use Gloves (E186).

l. Install two bolts, washers, and nuts in upper and lower tension fittings. **Torque bolts to 100 inch-pounds.**

m. Position floor doubler and tiedown receptacle. Apply mylar tape (E389) (Task 2-324).

n. Install rivets in floor doubler and receptacle.

7. Repair longeron vertical flange as follows:

a. Temporarily install outside skin in original position.

b. Temporarily install aluminum door coaming.

c. Make repair strap. Use sheet steel (E370) 1/2 hard, or sheet steel (E371).

NOTE

Finished strap size may vary because of location.

d. Drill at least 27 holes in strap for 11 rivets aft of crack, 12 rivets forward of crack and 4 rivets at sta 120. Follow rivet pattern on skin. Use goggles.

e. Fit strap to skin. Fill gaps under strap at skin laps. Use 0.020-inch shim stock.

f. Provide dissimilar metal protection for strap and shim (Task 2-351).

g. Apply mylar tape (E389) (Task 2-324).

h. Position strap and shims on longeron.

i. Install rivets wet. Use zinc chromate primer (E291). Use gloves (E186).

j. Install rivets, as required, in skin laps and door coaming. Follow original rivet pattern.

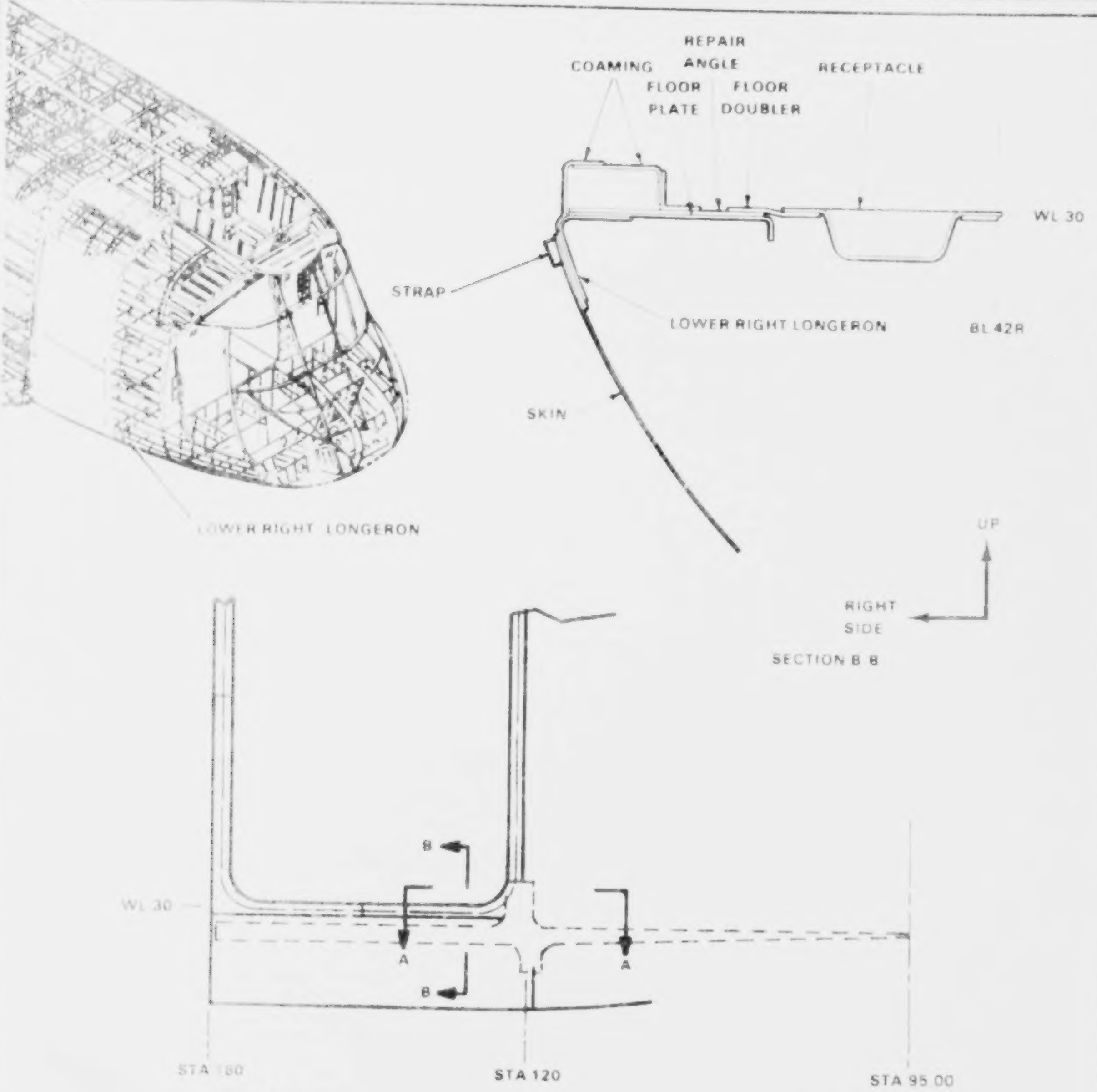
k. Apply fuselage sealing (Task 2-324).

l. Install door sill.

m. Drill six holes in repair angle at original door bracket positions.

GO TO NEXT PAGE

2-32 REPAIR RIGHT LOWER LONGERON (AVIM) (Continued) 2-32


COAMING
REPAIR ANGLE
FLOOR PLATE
FLOOR DOUBLER
RECEPTACLE
WL 30
STRAP
LOWER RIGHT LONGERON
BL 42R
SKIN
LOWER RIGHT LONGERON
UP
RIGHT SIDE
SECTION B-B
B
A
B
A
WL 30
STA 160
STA 120
STA 95.00

NOTES

A. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED
B. LENGTH AND WIDTH OF SHIMS TO MATCH EXISTING CONDITIONS
C. MAINTAIN FLOOR PLATE CONFIGURATION EXCEPT AS SHOWN
D. MAINTAIN FUSELAGE SEALING FOR WATERTIGHTNESS
E. MAINTAIN DISSIMILAR METAL CONTACT PROTECTION

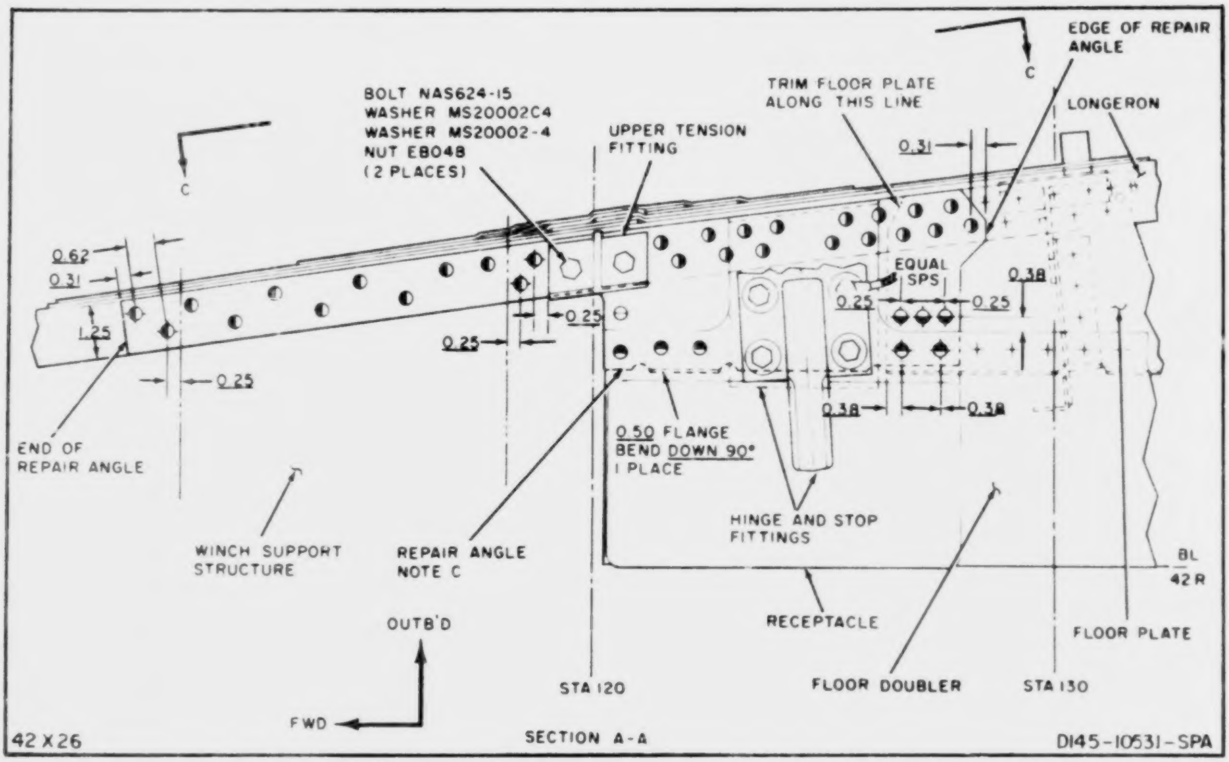
RIVET LEGEND

○	DENOTES EXISTING LOCATION
⌖	DENOTES NEW LOCATION
◐	BACRN15DN5AD
◑	NAS1097AD5
⊕	MIL-R-007885/2-5
◒	MIL-R-007825/2-4
◓	USAF461-7
⊖	M320470AD6

9449

Repair Lower Right Longeron (Sheet 1 of 2)

GO TO NEXT PAGE


BOLT NAS624-15
WASHER MS20002C4
WASHER MS20002-4
NUT EB048
(2 PLACES)
UPPER TENSION FITTING
TRIM FLOOR PLATE ALONG THIS LINE
EDGE OF REPAIR ANGLE
LONGERON
C
C
0.62
0.31
1.25
0.25
0.25
0.25
0.31
EQUAL SPS
0.25
0.25
0.38
0.38
0.38
END OF REPAIR ANGLE
0.50 FLANGE BEND DOWN 90° 1 PLACE
HINGE AND STOP FITTINGS
WINCH SUPPORT STRUCTURE
REPAIR ANGLE NOTE C
BL 42 R
RECEPTACLE
FLOOR PLATE
OUTB'D
FWD
STA 120
FLOOR DOUBLER
STA 130
42 X 26
SECTION A-A
D145-10531-SPA

Repair Lower Right Longeron (Sheet 2 of 2)

INSPECT

FOLLOW-ON MAINTENANCE:

Install forward door coamings and brackets (Task 2-76).

Install forward right floor panel assembly (Task 2-207).

Install cabin door hinge fittings (Task 2-154).

Install lower cabin door (Task 2-157).

END OF TASK

2-33 REPAIR BULKHEAD STA 95 2-33

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-10
Task 2-34
Task 2-35
Task 2-36

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. The bulkhead consists mostly of six webs and a crown web across the width of the body and the crown. The crown web, beams at bl 18, and five side webs, two on right and three on left side, form support structure for the forward transmission.
2. The webs are reinforced with formed and etruded caps. Formed stiffeners are riveted laterally to the webs.
3. Damage to the bulkhead shall be classified as minor damage (Task 2-34), reparable damage (Task 2-35), and damage requiring replacement (Task 2-36).

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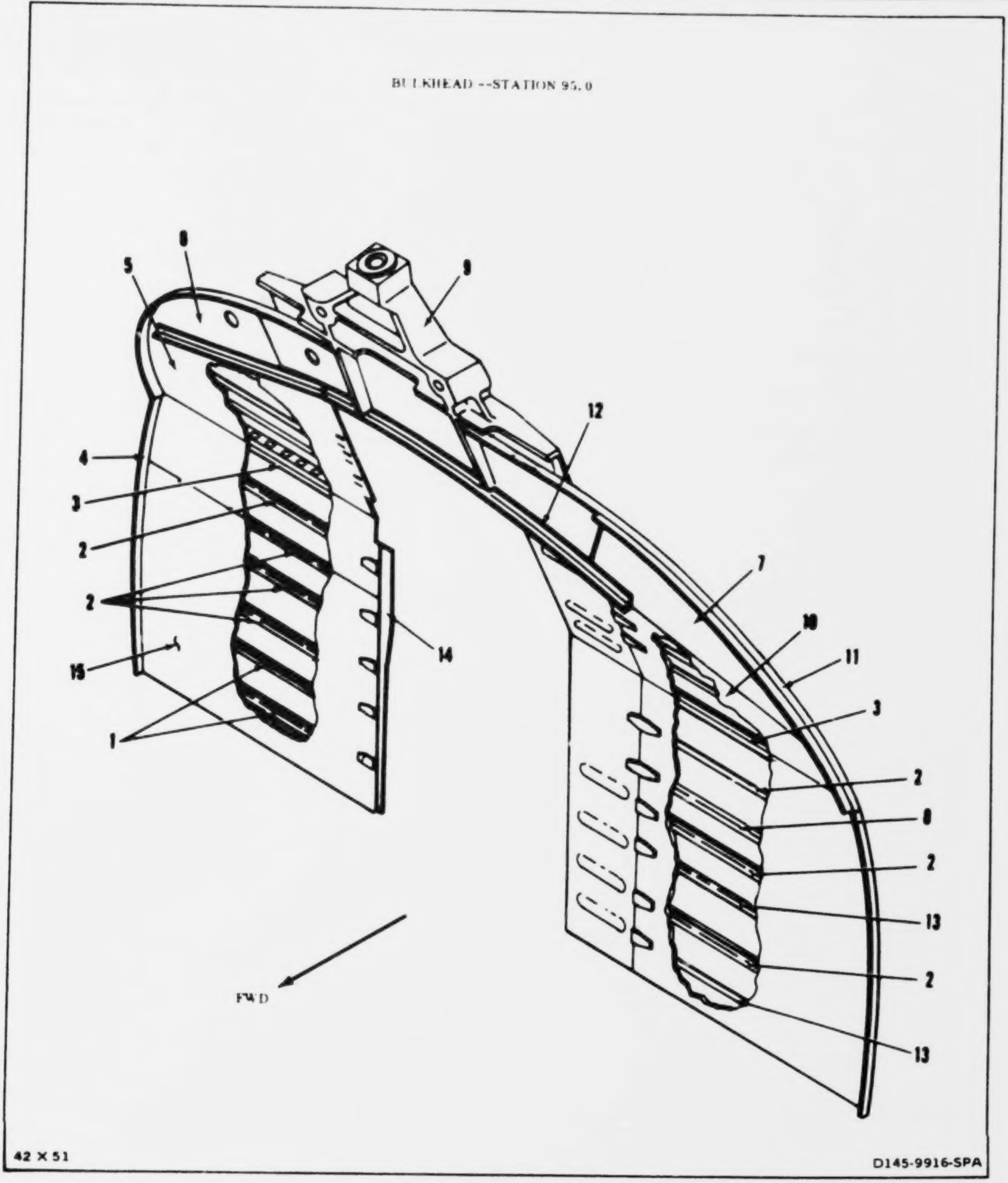

BULKHEAD --STATION 95.0
8
5
9
12
4
3
2
2
15
1
14
7
10
11
3
2
8
2
13
2
13
FWD
42 X 51
D145-9916-SPA

GO TO NEXT PAGE

2-33 REPAIR BULKHEAD STA 95 (Continued) 2-33

BULKHEAD — STATION 95.0

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	0.040	2024-T4 CLAD	0.050	2024-T3 CLAD	2-29
2	STIFFENER	VS70503-3	7075-T6	0.050	7075-T6 CLAD	2-29
3	CHANNEL	0.071	2024-T4 CLAD	0.071	2024-T3 CLAD	2-13
4	CAP	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE C
5	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
6	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
7	WEB	0.071	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
8	STIFFENER	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-29
9	FITTING		7075-T73652	NOTE B		—
10	WEB	0.040	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
11	CAP	ALCOA 16871	7075-T6	0.112	4130	NOTE C
12	CAP	AND10134-1407	7075-T6	0.160	4130	—
13	STIFFENER	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-29
14	CAP	AND10133-0701	7075-T6	0.063	4130	NOTE C
15	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13

NOTES:
A All dimensions are in inches.
B Replace with new fitting 114S1801-1.
C TM 55-1500-204-25/1.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-34 BULKHEAD STA 95 MINOR DAMAGE 2-34

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairers Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-33

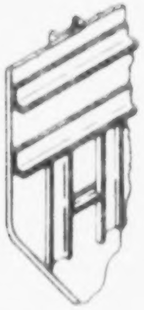
Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Minor damage is permissible and can be fixed simply, as burnishing nicks and scratches and removing small damaged areas (Task 2-33).

2. Burnished areas shall not exceed a depth equal to 10 percent of material thickness.



BULKHEAD WEB

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. FASTENERS NEAR DAMAGE CLASSIFIED AS MINOR MUST BE CAREFULLY INSPECTED FOR SIGNS OF FAILURE SUCH AS TIPPING OF HEAD, CRACKING OF PRIMER COAT, AND CLEARANCE UNDERNEATH HEAD
C. SMOOTH DENTS, FREE FROM CRACKS AND ABRASIONS, CAN BE DISREGARDED IF EDGES OF DENT CLEAR EDGES OF A STRUCTURAL MEMBER, WEB SPLICE, LIGHTENING OR ACCESS HOLE, OR A RADIUS BY AT LEAST 0.75
D. NO HOLES PERMITTED UNREPAIRED IN ANY WEBS

42 X 26

D145-9917-SPA

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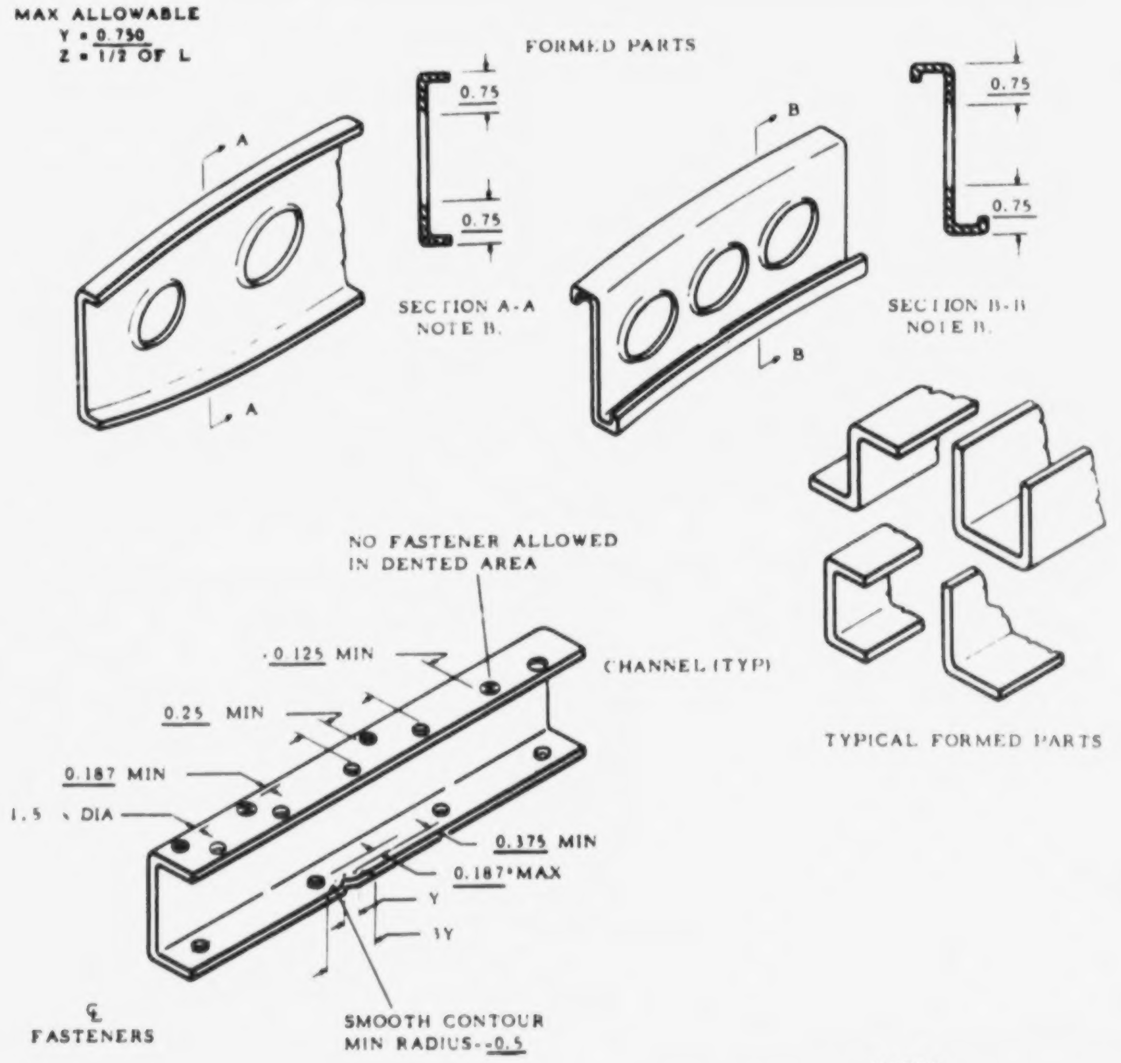
2-34 BULKHEAD STA 95 MINOR DAMAGE (Continued) 2-34


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
FORMED PARTS
A
A
0.75
0.75
SECTION A-A
NOTE B.
B
B
0.75
0.75
SECTION B-B
NOTE B.
TYPICAL FORMED PARTS
NO FASTENER ALLOWED IN DENTED AREA
-0.125 MIN
CHANNEL (TYP)
0.25 MIN
0.187 MIN
1.5 X DIA
0.375 MIN
0.187*MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.5

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
⊕ --DENT.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DAMAGE IN SHADED AREAS AND OVERLAPPING SHADED AND UNSHADED AREAS IS CLASSIFIED AS MINOR OR NOT MINOR ACCORDING TO DIMENSIONS FOR GIVEN CHANNELS. DAMAGE IN UNSHADED AREAS MAY BE CLASSIFIED AS MINOR WHEN THE MAXIMUM DIAMETER OF HOLES IS 0.875 WITH THE DISTANCE BETWEEN TRIMMED EDGES OF ANY TWO HOLES BEING 10 TIMES THE DIAMETER OF LARGER HOLE

42 X 51

D145-9918-SPA

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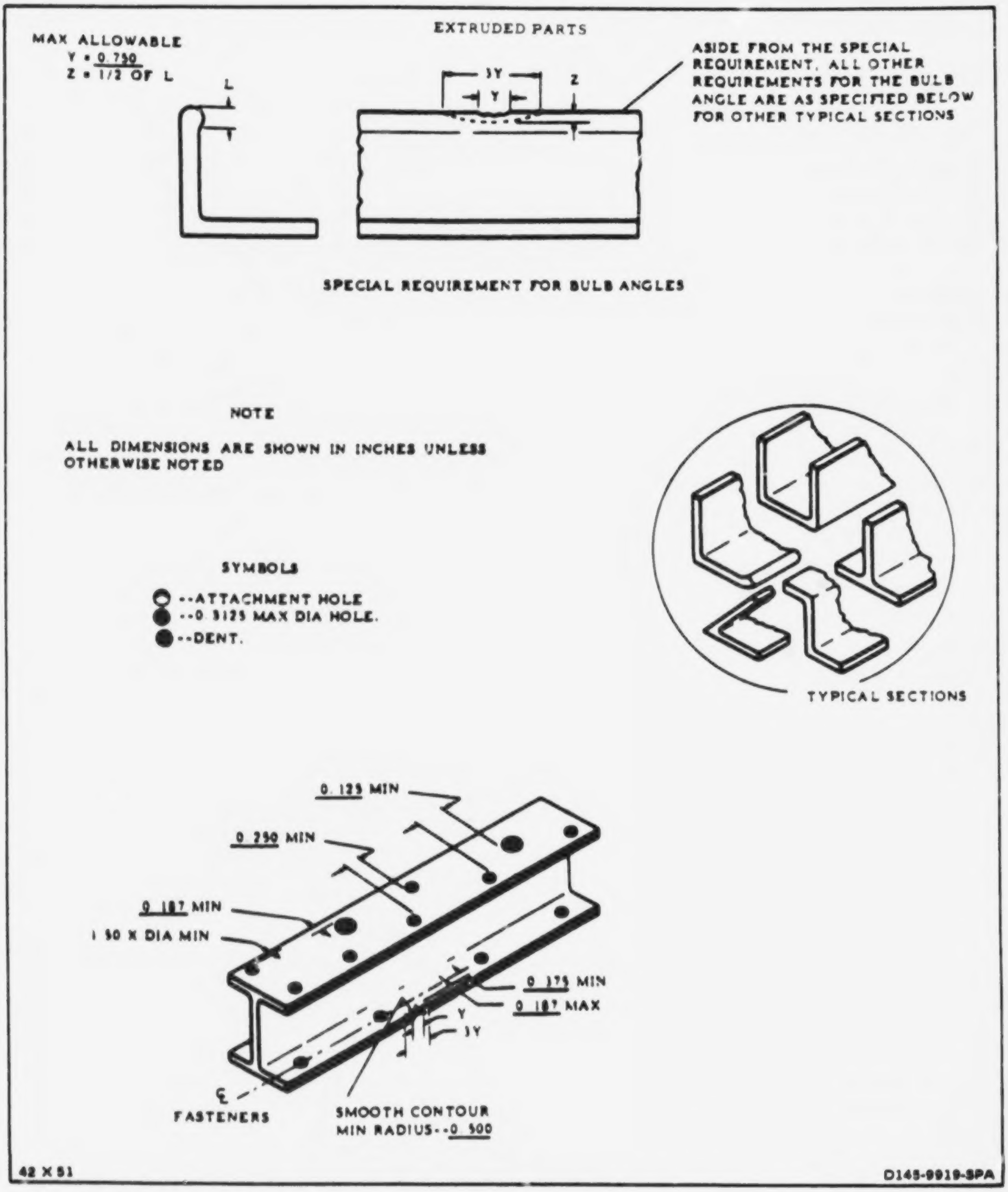
2-34 BULKHEAD STA 95 MINOR DAMAGE (Continued) 2-34


EXTRUDED PARTS
MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SPECIAL REQUIREMENT FOR BULB ANGLES
TYPICAL SECTIONS
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄
FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.500
42 X 51
D145-9919-SPA

NOTE

ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
● --DENT.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-35 BULKHEAD STA 95 REPARABLE DAMAGE (AVIM) 2-35

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Technical Inspector's Tool Kit,
NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-33
Task 2-359

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Damage to fabricated sheet metal part of bulkhead greater than minor but affecting less than 25 percent of web cross section may be repaired by patching. However, there must be enough clearance from adjacent parts for rivet spacing.
2. If damage to fabricated part of bulkhead affects more than 25 percent of web cross section (Task 2-33), repair it by insertion.
3. Repair dented sections of webs using splice plate. Do not remove dents.

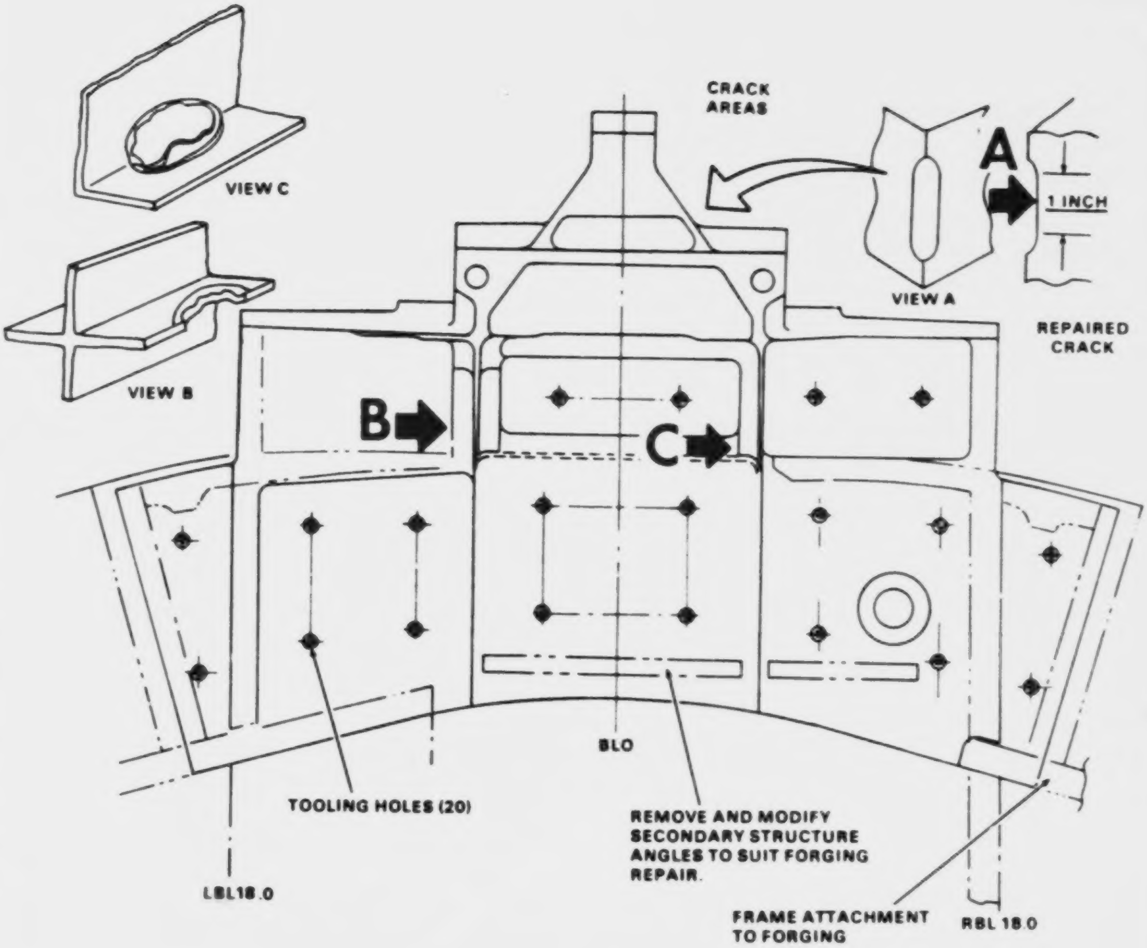
NOTE

- Extensive damage to sheet metal portion of bulkhead, such as the loss of a major portion of part length (Task 2-33) or many isolated damages, shall be repaired by replacement. Damage to web or flanges on forged upper portion of bulkhead shall be repaired by replacement.
- Tooling holes in forging do not require matching holes in repairs.

4. Repair cracks in webs if following requirements are met:
   a. Damage must not be on forged upper portion of bulkhead.
   b. Crack must be in area where stock-thickness angles or plates will fit.
   c. There must be space to install approved rivet patterns.
   d. Repair must not interfere with other parts.
5. Use back-to-back repair angles or splice plates to repair flanges. If damage is longer than 1.25 inches, use insertion.
6. Use Hilok rivets or Huckbolts for repairs.
7. Repair cracks by filing a 1/4-inch, 45-degree chamfer to remove. Bottom of chamfer may not exceed 1-inch with 1-inch radius at each end. Penetrant inspect repairs.
8. See Task 2-359 for oilcan inspection and repair.

GO TO NEXT PAGE

2-35 BULKHEAD STA 95 REPARABLE DAMAGE (AVIM) (Continued) 2-35



VIEW C
CRACK AREAS
A
1 INCH
VIEW A
REPAIRED CRACK
VIEW B
B
C
BLO
TOOLING HOLES (20)
REMOVE AND MODIFY SECONDARY STRUCTURE ANGLES TO SUIT FORGING REPAIR.
LBL18.0
FRAME ATTACHMENT TO FORGING
RBL 18.0

42 x51

BULKHEAD FORGING REPAIR, STA 95

D145-11218-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-36 REPAIR COCKPIT ENCLOSURE 2-36

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-10
Task 2-37
Task 2-38

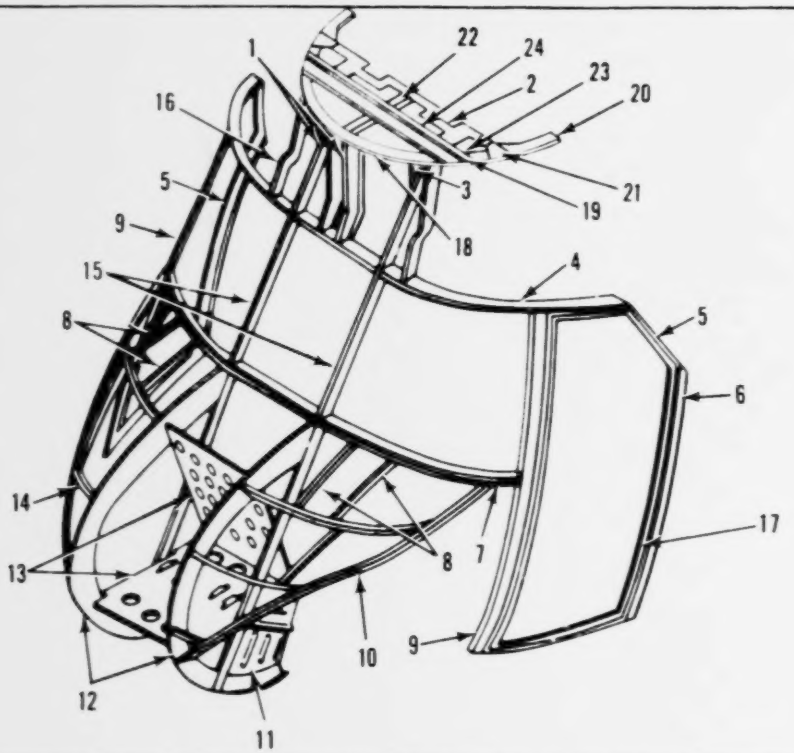
Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. The cockpit enclosure consists of three sections of framing, three windshields, four panel assemblies, and two door assemblies.
2. Classification of damage to the cockpit enclosure is classified as minor (Task 2-37) or reparable (Task 2-38).

GO TO NEXT PAGE



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
2	STIFFENER	0.032 2024-T4 CLAD	0.050 2024-T3 CLAD	2-29
3	GUSSET	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	NOTE F.
4	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
5	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
6	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
7	FORMER	0.042 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
8	STIFFENER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-29
9	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
10	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
11	WEB	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	2-13
12	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F.
13	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
14	STIFFENER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-29
15	POST	ALCOA T364 7075-T6	NOTE B.	—
16	CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD	2-13
17	SEAL	MOLDED SILICONE RUBBER	NOTE C. AND D.	—
18	STIFFENER	0.032 2024-T4 BARE	0.050 2024-T3 CLAD	2-29
19	TEE FITTING	145SS107 NOTE E.	145SS107 NOTE E.	NOTE F.
20	FITTING	0.080 4130 NORM	0.100 4130 NORM	NOTE F.
21	GUSSET	0.036 4130 NORM HT TR	0.050 4130 NORM NOTE E.	NOTE F.
22	CHANNEL	0.032 2024-T4 BARE	0.050 2024-T3 CLAD	2-13
23	WEB	0.036 4130 NORM	0.050 4130 NORM	2-13
24	WEB	0.032 2024-T4 BARE	0.040 2024-T3 CLAD	2-13

NOTES

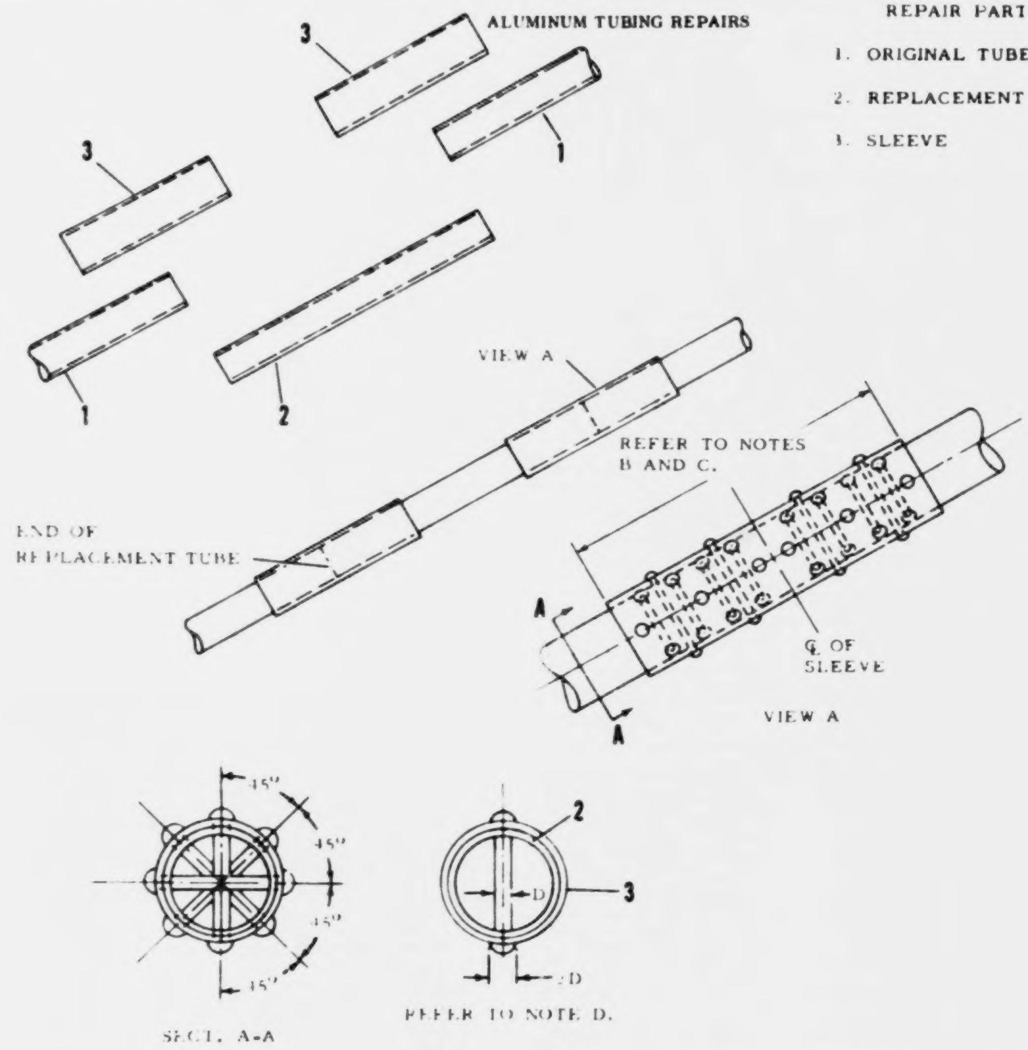
A. ALL DIMENSIONS ARE IN INCHES
B. REFER TO TASK 2-38 FOR REPAIR PROCEDURE
C. REPAIR WITH ORIGINAL MATERIAL. SEE TASK 2-367
D. REPLACE WITH NEW SEAL 114SS664-3 LH OR -4 RH, IF DAMAGE IS OTHER THAN MINOR
E. HEAT TREAT TO 125 TO 145 KSI
F. TM 55-1500-204-25/1

1468

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 1 of 3)

GO TO NEXT PAGE

2-36 REPAIR COCKPIT ENCLOSURE (Continued) 2-36


ALUMINUM TUBING REPAIRS
3
1
3
1
2
VIEW A
REFER TO NOTES B AND C.
END OF REPLACEMENT TUBE
A
A
℄ OF SLEEVE
VIEW A
45°
45°
45°
45°
2
D
3
2D
REFER TO NOTE D.
SECT. A-A

REPAIR PARTS

1. ORIGINAL TUBE
2. REPLACEMENT TUBE
3. SLEEVE

TUBES (1) AND (2)		SLEEVE (3)			RIVETS
DIA	WALL	DIA	WALL	LENGTH	REQD
0.50	0.035	0.625	0.058	9.375	MS20470AD5
0.75	0.065	0.875	0.058	9.375	MS20470AD5
0.875	0.065	1.0	0.058	9.375	MS20470AD5
1.0	0.065	1.125	0.058	11.25	MS20470AD6
1.25	0.065	1.25	0.058	11.25	MS20470AD6
1.25	0.058	1.375	0.058	11.25	MS20470AD6
1.375	0.058	1.5	0.058	11.25	MS20470AD6
1.5	0.058	1.625	0.058	15.0	MS20470AD8
1.625	0.058	1.75	0.058	15.0	MS20470AD8
1.75	0.058	1.875	0.058	15.0	MS20470AD8
1.875	0.058	2.0	0.058	15.0	MS20470AD8

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. ALL RIVETS 3D PITCH
C. TOTAL NUMBER OF RIVETS REQUIRED: 18. 9 EACH SIDE OF SLEEVE CENTERLINE
D. FORM SHOP HEADS BY HAMMERING LIGHTLY. SHOP HEADS TO BE APPROXIMATE HEIGHT OF MANUFACTURED HEAD
E. USE SAME TYPE MATERIAL AS ORIGINAL FOR REPLACEMENT TUBE AND SLEEVE
F. REPAIR IS APPLICABLE TO STRUCTURAL TUBING ONLY. REFER TO TM55-1500-204-25/1 FOR INFORMATION ON REPAIR OF FLUID TUBING

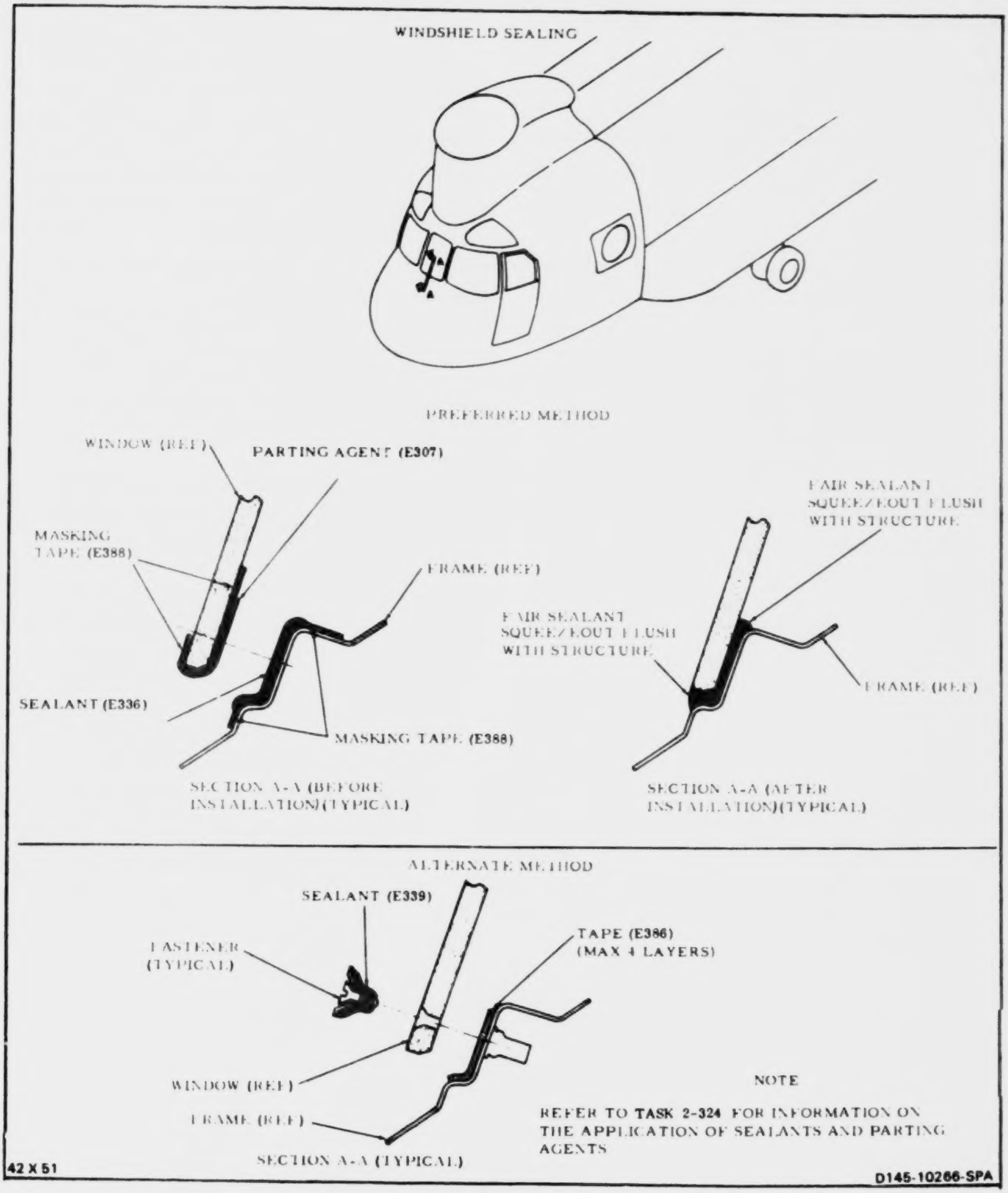
42 X 51

D145-10265-SPA

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 2 of 3)

GO TO NEXT PAGE

2-36 REPAIR COCKPIT ENCLOSURE (Continued) 2-36


WINDSHIELD SEALING
A
A
PREFERRED METHOD
WINDOW (REF)
PARTING AGENT (E307)
MASKING TAPE (E388)
FRAME (REF)
SEALANT (E336)
MASKING TAPE (E388)
SECTION A-A (BEFORE INSTALLATION)(TYPICAL)
FAIR SEALANT SQUEEZEOUT FLUSH WITH STRUCTURE
FAIR SEALANT SQUEEZEOUT FLUSH WITH STRUCTURE
FRAME (REF)
SECTION A-A (AFTER INSTALLATION)(TYPICAL)
ALTERNATE METHOD
SEALANT (E339)
FASTENER (TYPICAL)
TAPE (E386) (MAX 4 LAYERS)
WINDOW (REF)
FRAME (REF)
SECTION A-A (TYPICAL)
42 X 51
D145-10266-SPA

NOTE

REFER TO TASK 2-324 FOR INFORMATION ON THE APPLICATION OF SEALANTS AND PARTING AGENTS

Enclosure Repairs — Cockpit Fuselage Structure (Sheet 3 of 3)

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-37 MINOR REPAIR COCKPIT ENCLOSURE 2-37

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:

As Required

Personnel Required:

Aircraft Structural Repairer

Inspector

References:

Task 2-6

Task 2-36

Task 2-42

Equipment Condition:

As Required

General Safety Instructions:

As Required

---

1. Minor damage is damage which can be corrected easily, as stop drilling cracks, removal of small dents, and damaged areas for formed metal parts (Task 2-6, Task 2-36).
2. Refinish windshields as required (Task 2-42).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-38 REPARABLE DAMAGE COCKPIT ENCLOSURE 2-38

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
None

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-366
Task 2-345
Task 2-41

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Damage more extensive than minor (Task 2-37) to formed metal parts of the enclosure shall be repaired by insertion.
2. For typical repairs to formed metal parts and extruded metal parts refer to TM 55-1500-204-25/1.
3. For information on spot welding aluminum tubing repair, refer to Task 2-366.
4. Refer to Task 2-345 and TM 55-1500-204-25/1 for information on transparent acrylic plastic parts repair.
5. If windshield or window removal is necessary for access to damage area, seal after reinstallation (Task 2-324).
6. If pilot's assist straps are torn in area of attaching hardware, reinstall using machine screw AN515 with washer AN960.
7. Replace windshields if damaged more than criteria in Task 2-41.

FOLLOW-ON MAINTENANCE:

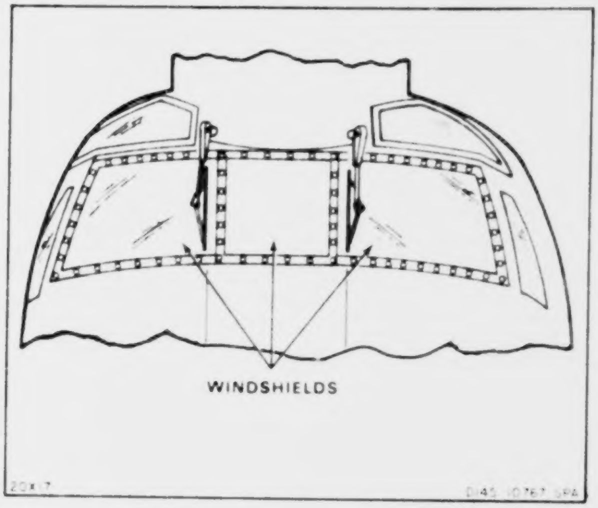
As required.

Tasks 2-39 and 2-40 deleted.
Pages 2-173 thru 2-176 deleted.

END OF TASK

2-41 INSPECT WINDSHIELD 2-41

INITIAL SETUP



Applicable Configurations:
All

Tools:
Technical Inspector's Tool Kit, NSN 5180-00-323-5114
Workstand

Materials:
None

Personnel Required:
Inspector

Equipment Condition:
Battery Disconnected (Task 1-39)
Electric Power Off
Hydraulic Power Off
Windshield Cleaned (Task 1-77.1)

NOTE

- Windshields may be either plastic or glass. Glass windshield part number is VER-18-007-1, VER-18-008-1, and NP-1040-01-1. Plastic windshield part numbers E-132500-1, E132500-2, and E-144600-1.
- Procedure is same for inspection of pilot's, copilot's and center plastic and glass windshields, however, disposition is different. Pilot's windshield is shown here

GO TO NEXT PAGE

2-41 INSPECT WINDSHIELD (Continued) 2-41

1. **Inspect windshield (1) for nicks, dents, scratches, blemishes, and discolorations in critical areas (2) and (3).** If defects block or limit pilot's vision, replace windshield, if glass. Repair or replace windshield as required, if plastic.
2. **Inspect windshield (1) for cracks and crazing.** Replace windshield if cracked or crazed.

NOTE

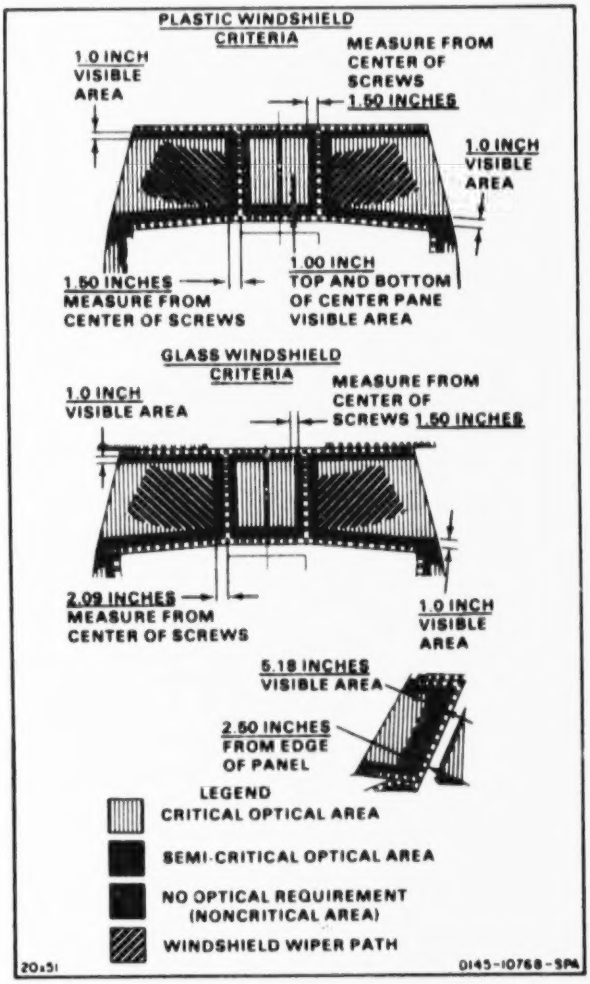
Dark brown and gold discoloration between layers of glass are indications of burnout. Do not mistake burnout colors for light gold tint of heating element.

3. **Inspect windshield (1) for burnout.** Replace windshield if burnout blocks or limits pilot's vision.

NOTE

Delaminations in windshield appear as blisters and air bubbles between layers.

4. **Inspect windshield (1) for delaminations** (separation of layers). Replace windshield if delaminations block or limit pilot's vision.


PLASTIC WINDSHIELD CRITERIA
1.0 INCH VISIBLE AREA
MEASURE FROM CENTER OF SCREWS 1.50 INCHES
1.0 INCH VISIBLE AREA
1.50 INCHES MEASURE FROM CENTER OF SCREWS
1.00 INCH TOP AND BOTTOM OF CENTER PANE VISIBLE AREA
GLASS WINDSHIELD CRITERIA
1.0 INCH VISIBLE AREA
MEASURE FROM CENTER OF SCREWS 1.50 INCHES
2.09 INCHES MEASURE FROM CENTER OF SCREWS
1.0 INCH VISIBLE AREA
5.18 INCHES VISIBLE AREA
2.50 INCHES FROM EDGE OF PANEL
LEGEND
CRITICAL OPTICAL AREA
SEMI-CRITICAL OPTICAL AREA
NO OPTICAL REQUIREMENT (NONCRITICAL AREA)
WINDSHIELD WIPER PATH
20x51
0145-10768-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-42 REPAIR PLASTIC WINDSHIELDS AND WINDOWS 2-42

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114
Workstand
Portable Disk Sander, 7 Inch
Stitched Buffing Wheel, 7 Inch
Unstitched Buffing Wheel, 7 Inch
Rubber Block, 2 Inches x 2 Inches x 4 Inches
Water Hose

Materials:

Abrasive Paper (E10)
Abrasive Paper (E11 thru E15)
Buffing Compound (E88)
Buffing Compound (E89)
Cleaning Compound (E118)
Cloth (E128)
Rain Repellant (E307)
Rouge (E316)
Masking Tape (E388)
Wax (E442)

Personnel Required:

Aircraft Structural Repairer
Aircraft Structural Repairer
Inspector

References:

Task 2-41

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Windshield Cleaned (Task 1-77.1)

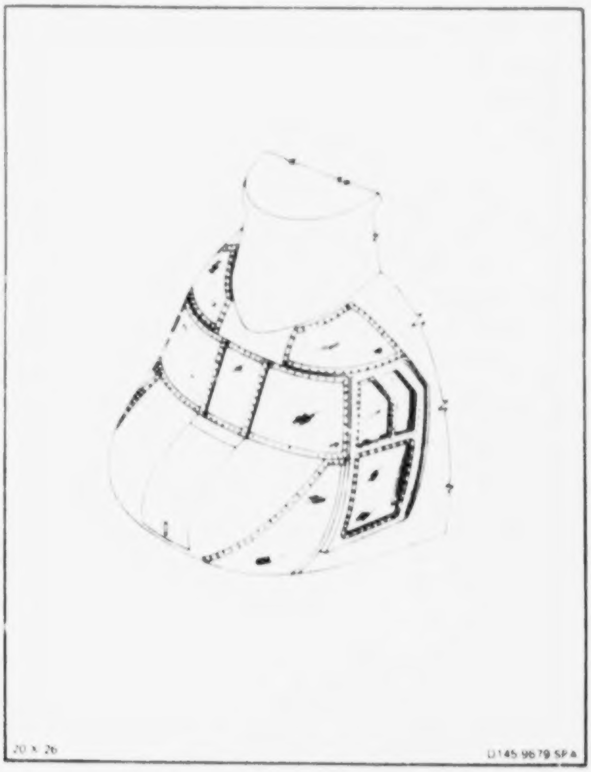
General Safety Instructions:

CAUTION

Surface to be repaired must be covered with water at all times to prevent further damage.

---

1. **Mask areas adjacent to repair area** to protect from damage. use masking tape (E388).
2. Wrap abrasive paper (E10) around rubber block.
3. **Sand surface** to be repaired. **Use abrasive paper (E10) wet with water.**
4. **Using a finer grit abrasive paper (E11 thru E15), repeat step 3 until scratches are removed.**
5. **Flush repaired surface** with water to remove loose foreign matter.



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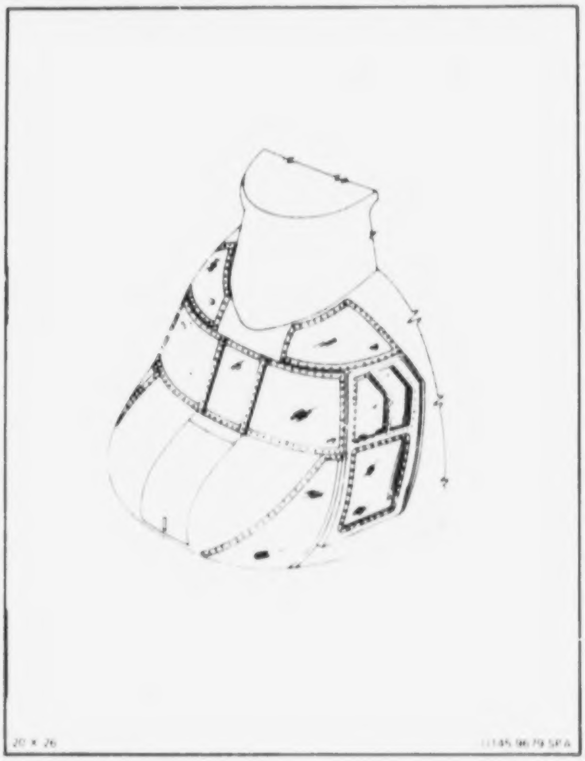
2-42 REPAIR PLASTIC WINDSHIELDS AND WINDOWS (Continued) 2-42



CAUTION

Machine polishing of critical optical areas by a qualified operator is mandatory. Semicritical and noncritical areas (Task 2-41) only can be polished by hand. Use rouge (E316) applied with a water-moistened pad of cloth (E128).

6. **Polish sanded surface, using a stitched buffing wheel** mounted in a portable disk **and buffing compound (E88).**

INSPECT

7. **Polish sanded surface, using an unstitched buffing wheel and buffing compound (E89).**
8. Using a cleaner-polish (E118) applied with a water-moistened pad of cloth (E128) **polish surface to desired luster.**
9. If required, a high-luster finish can be obtained by using wax (E442) applied to surface with a water-moistened pad of cloth (E128) and rubbing lightly in a circular motion.

WARNING

Do not allow rain repellant to come in contact with open flame as deadly hydrogen fluoride gas could be generated. Wash hands with soap and water after handling rain repellant.

10. **Apply rain repellant (E307)**, if required, to windshields using a flannel cloth (E128).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-43 REMOVE PILOT'S OR COPILOT'S WINDSHIELD 2-43

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

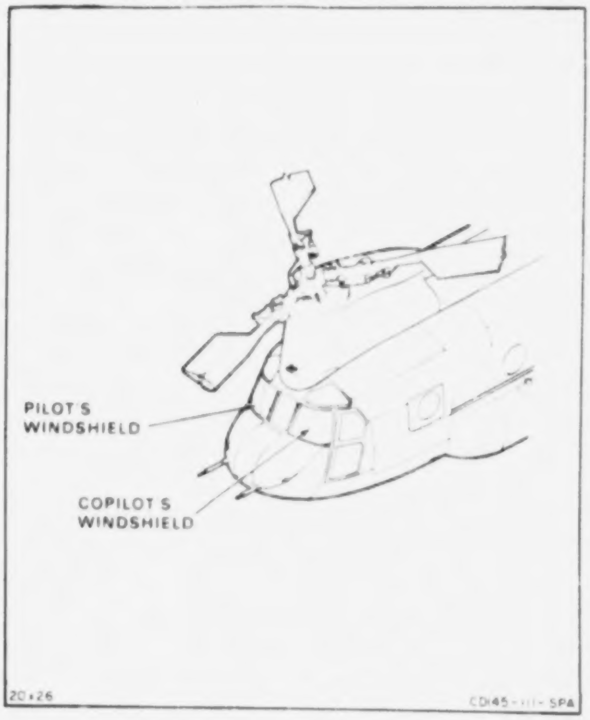
Materials:
Paper Tags (E264)

Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-45

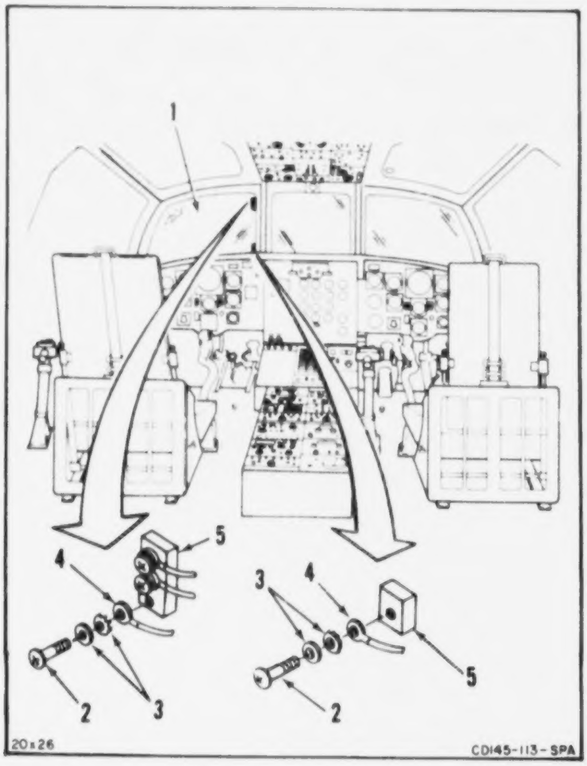
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


PILOT'S WINDSHIELD
COPILOT'S WINDSHIELD
20x26
CD145-111-SPA

NOTE

Procedure is same to remove either pilot's or copilot's windshield. Copilot's windshield is shown here.

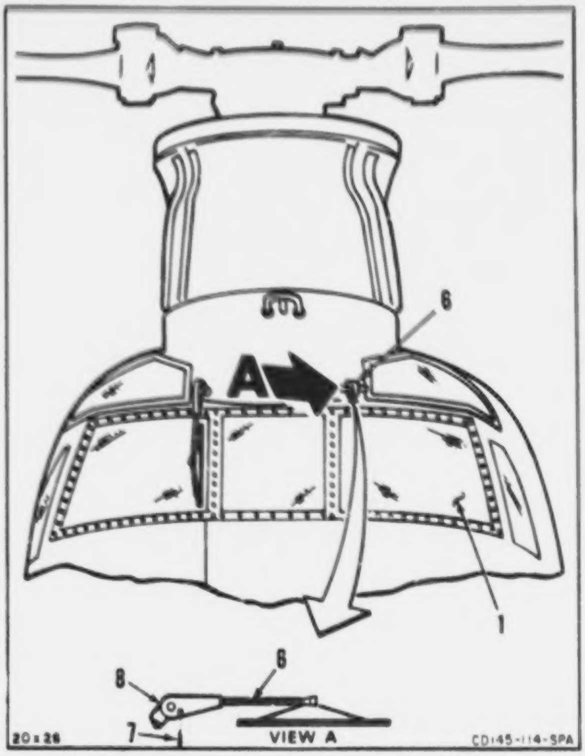
1. From inside helicopter (1), **remove four screws (2), eight washers (3), and four wires (4), from terminal blocks (5).** Tag all wires as they are disconnected. Use paper tags (E264).


1
5
4
3
4
5
2
3
2
20x26
CD145-113-SPA

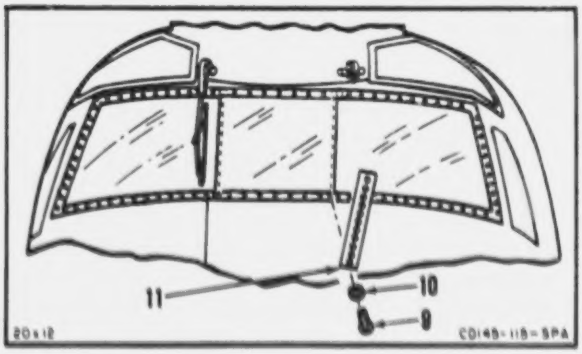
GO TO NEXT PAGE

2-43 REMOVE PILOT'S OR COPILOT'S WINDSHIELD (Continued) 2-43

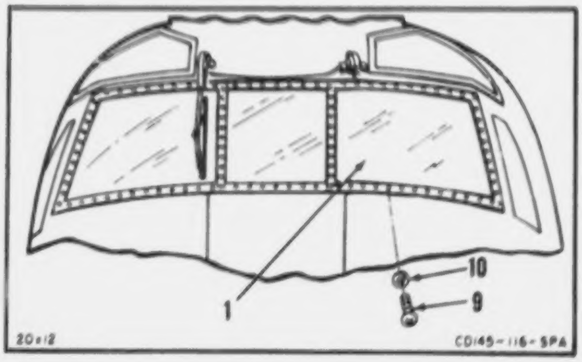
2. From outside helicopter, **hold windshield wiper arm (6) away from windshield (1).**
3. **Put cotter pin (7) through hole in wiper arm (6)** near hub (8).


6
A
1
8
6
7
VIEW A
20x26
CD145-114-SPA

4. Remove 11 screws (9) and washers (10) from retainer (11).
5. **Remove retainer (11).**


11
10
9
20x12
CD145-115-SPA

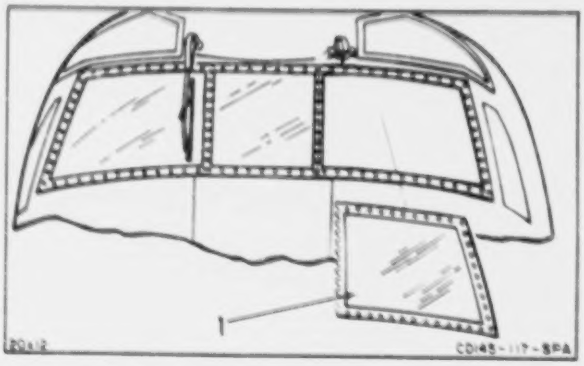
6. Remove other 34 screws (9) and washers (10) from around windshield (1).


10
9
1
20x12
CD145-116-SPA

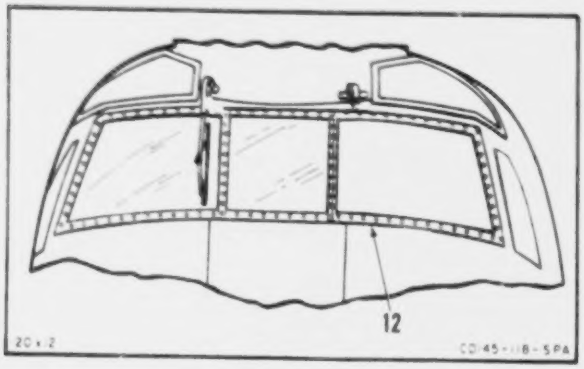
GO TO NEXT PAGE

2-43 REMOVE PILOT'S OR COPILOT'S WINDSHIELD (Continued) 2-43

7. **Remove windshield (1).**


1
20x12
CD145-117-SPA

8. **Check that rubber strip (12) is not loose, cut, or nicked.** If damaged or loose, replace strip (Task 2-45).


12
20x12
CD145-118-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-44 REMOVE CENTER WINDSHIELD 2-44

INITIAL SETUP

Applicable Configurations:
All

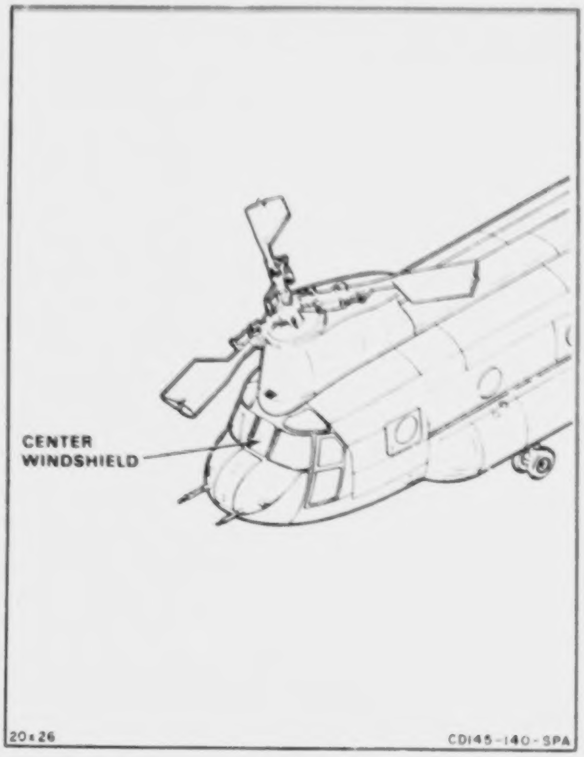
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:
Paper Tags (E264)

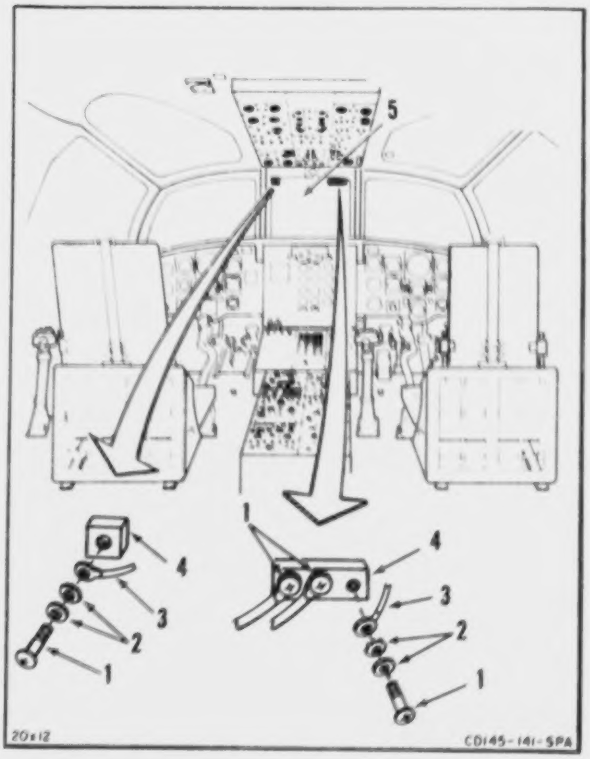
Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-45

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


CENTER WINDSHIELD
20x26
CD145-140-SPA

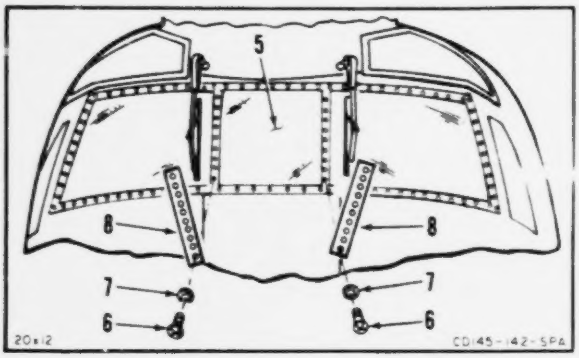
1. From inside helicopter, **remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4)** on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).


5
1
4
3
2
1
4
3
2
1
20x12
CD145-141-SPA

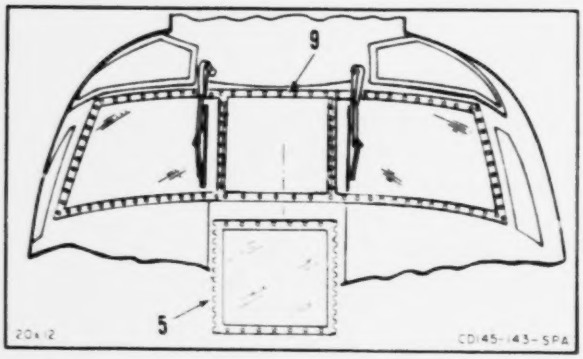
GO TO NEXT PAGE

2-44 REMOVE CENTER WINDSHIELD (Continued) 2-44

2. From outside helicopter, **remove 36 screws (6) and washers (7)** from around windshield (5).
3. **Remove retainers (8).**


5
8
8
7
7
6
6
20x12
CD145-142-SPA

4. **Remove windshield (5).**
5. **Check that rubber strip (9) is not loose, cut, or nicked.** If damaged or loose, replace strip (Task 2-45).


9
5
20x12
CD145-143-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-45 REPLACE WINDSHIELD PANEL SUPPORT STRUCTURE RUBBER STRIP 2-45

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
- Acid Swabbing Brush
- Paint Brush
- C-Clamp 2-Inch (3)
- Workstand

Materials:
- Sealant (E340)
- Cleaning Cloth (E120)
- Methyl-Ethyl-Ketone (E244)
- Sheet Steel, 4 Feet x 2-Inch x 1/16-Inch Thick (E372)
- Zinc Chromate Primer (E291)
- Sheet, Rubber (E319)
- Abrasive Paper (E6)
- Gloves (E186)

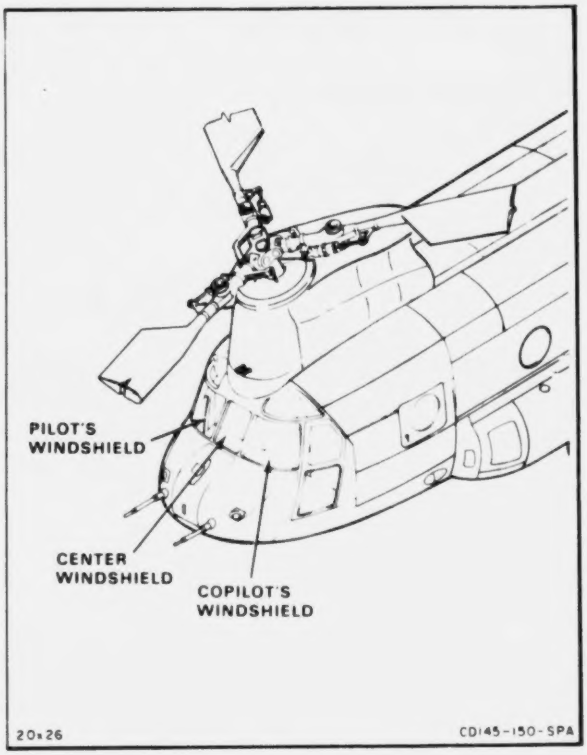
Personnel Required:
- 68G10 Aircraft Structure Repairer
- 67U30 Inspector

Equipment Condition:
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- Windshield Removed (Task 2-43 For Pilot's Or Copilot's Windshield, Or Task 2-44 For Center Windshield)

General Safety Instructions:

WARNING

Sealant E340 can irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.



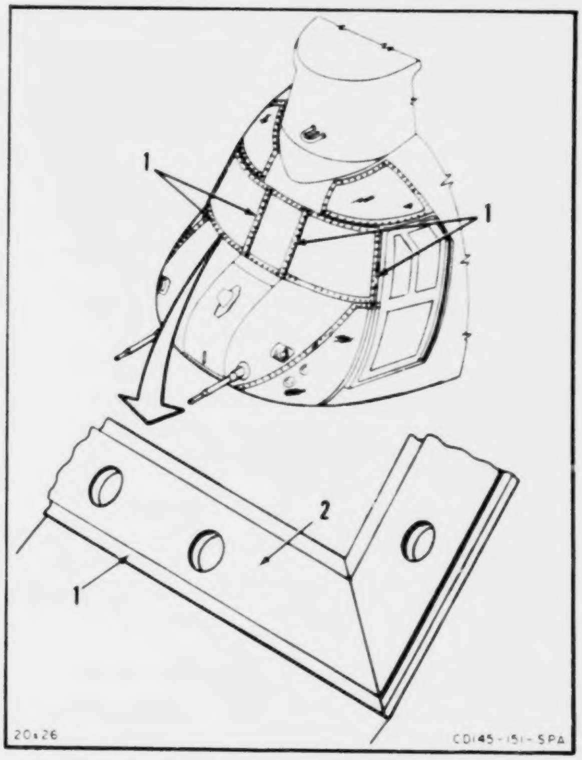
GO TO NEXT PAGE

2-45 REPLACE WINDSHIELD PANEL SUPPORT STRUCTURE RUBBER STRIP (Continued) 2-45

NOTE

Procedure is same to replace rubber strip on pilot's, center, or copilot's windshield support structure.

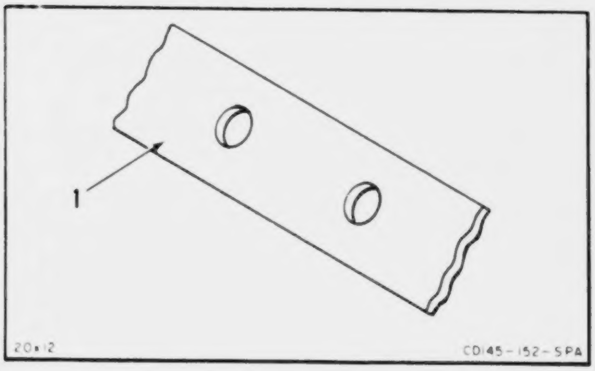
1. **At support structure (1) remove old section of rubber strip (2).**



WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

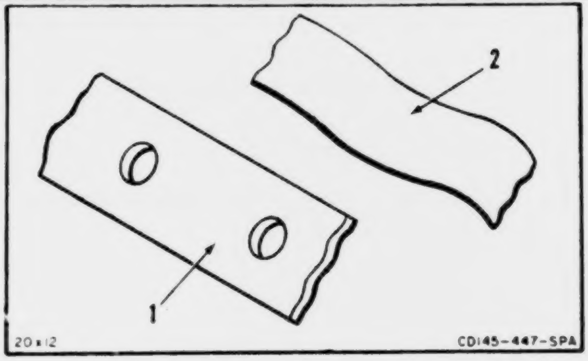
2. **Clean surface of windshield support structure (1)** with methyl-ethyl-ketone (E244). Wear gloves (E186).



GO TO NEXT PAGE

2-45 REPLACE WINDSHIELD PANEL SUPPORT STRUCTURE RUBBER STRIP (Continued) 2-45

3. **Cut new rubber strip (2)** to fit structure (1). Lightly rub both sides with abrasive paper (E6).



WARNING

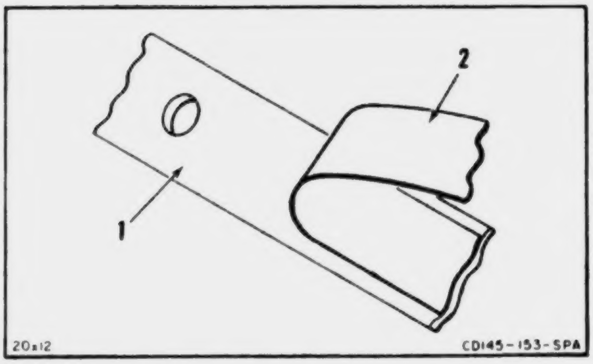
Primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

4. **Brush one coat of primer (E291) on structure (1). Wear gloves (E186).**
5. Let primer (E291) dry for at least 30 minutes.

NOTE

Sealant (E340) cures quickly. Steps 6. thru 9. must be done quickly before sealant dries, to get good bond between rubber strip and structure.

6. **Brush sealant (E340) on surface of structure (1).**
7. **Brush sealant (E340) on one side of rubber strip (2).**
8. **Position rubber strip (2) on structure (1),** with sealant down.



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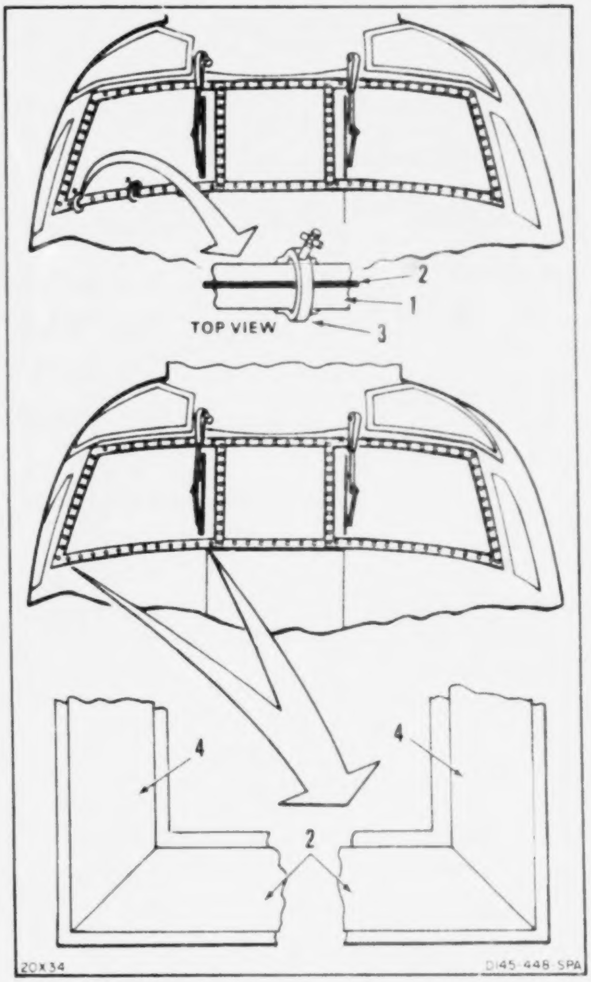
2-45 REPLACE WINDSHIELD PANEL SUPPORT STRUCTURE RUBBER STRIP (Continued) 2-45

9. Cut piece of sheet metal to fit over new strip (2).
10. **Clamp sheet metal in place to hold strip (2)** against structure (1). Use at least three C-clamps (3). Put one clamp on each end and one clamp on middle of piece of sheet steel (E372).
11. **Let sealant cure** for 1 hour.
12. Remove clamps (3) and sheet steel (E372).
13. **Check ends of strips (2) and (4) for gaps.** If there are no gaps, do step 21. If there are gaps, do steps 14 thru 21.
14. **Fit a piece of rubber strip in gap** between strips (2 and 4). Make sure there are no overlaps.
15. **Remove piece of rubber strip** used to fill gap. Lightly rub both sides with abrasive paper (E6).
16. **Brush sealant (E340) on surface of structure** (1) under gap.
17. **Brush sealant (E340) on one side of piece of rubber strip.**
18. **Position piece of rubber strip** on structure (1) to fill gap.
19. **Clamp piece of sheet metal to hold section of rubber strip against structure (1).**
20. **Let sealant cure** for 1 hour, then remove clamp (3) and sheet metal.
21. **Punch holes through strip (2),** using screw holes in structure (1) as a guide.



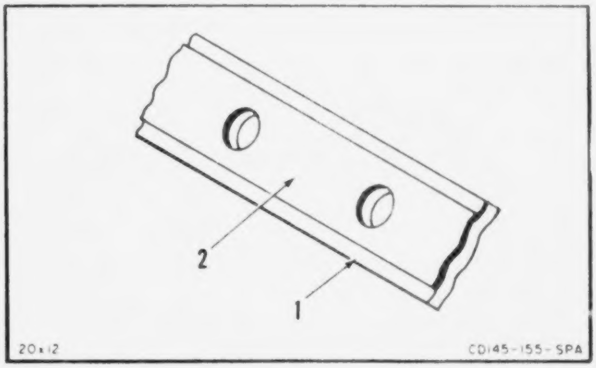
INSPECT

FOLLOW-ON MAINTENANCE:

Install windshield (Task 2-46 for pilot's or copilot's windshield, or Task 2-47 for center windshield).

Check windshield for leaks (Task 2-61).

END OF TASK



2-46 INSTALL PILOT'S OR COPILOT'S WINDSHIELD 2-46

INITIAL SETUP

Applicable Configurations:
All

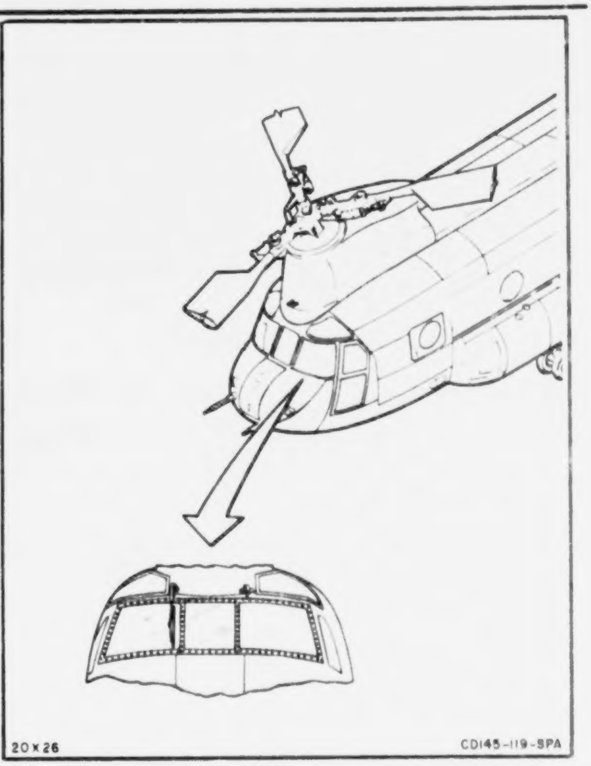
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 5 To 50 Inch-Pounds
Workstand

Materials:
Sealant (E336)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P

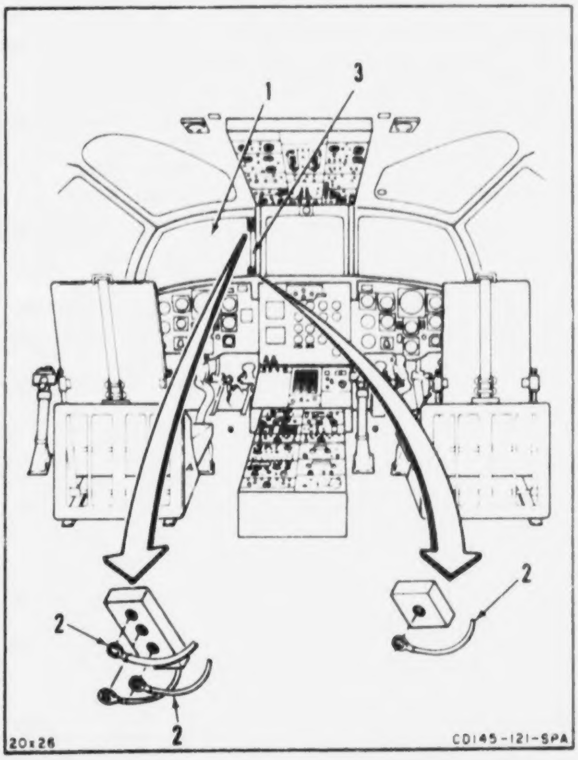
Equipment Condition:
Windshield Heating Element And Sensors Tested (Task 12-2)



NOTE

Procedure is same to install pilot's or copilot's windshield. Copilot's windshield is shown here.

1. Have helper inside cockpit (1) make sure windshield is free of all wires (2). Make sure support structure (3) is free of all wires (2).



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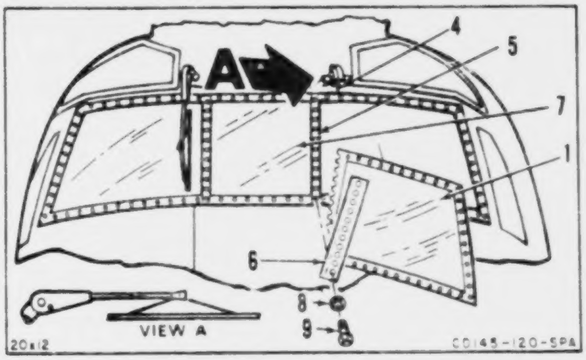
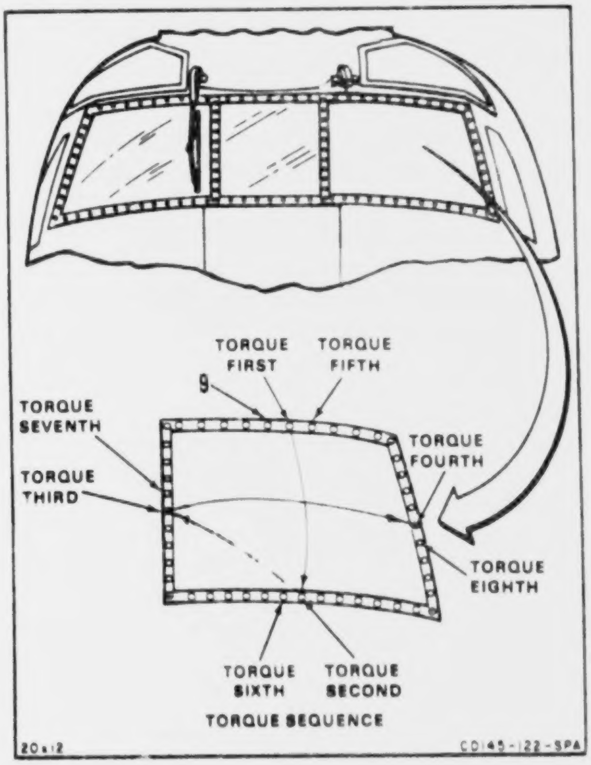
2-46 INSTALL PILOT'S OR COPILOT'S WINDSHIELD (Continued) 2-46

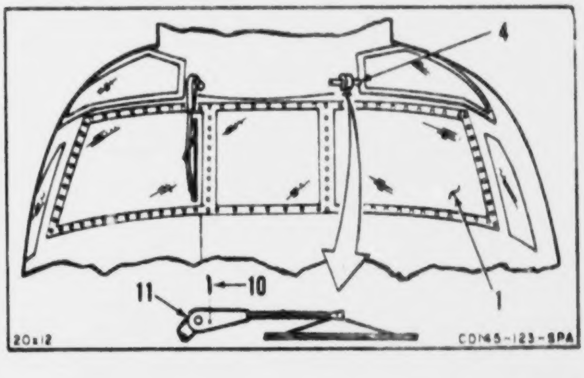
2. Make sure windshield wiper arm (4) is raised and held clear of installation area.
3. **Position windshield (1) against rubber strip (5).**
4. **Install retainer (6)** in slot between windshield (1) being installed and center windshield panel (7).
5. **Install 45 washers (8) and screws (9).**


A
4
5
7
1
6
8
9
VIEW A
20x12
CD145-120-SPA

6. **Torque screws (9) to 12 inch-pounds.** Torque screws following torque sequence shown.


TORQUE FIRST
TORQUE FIFTH
9
TORQUE SEVENTH
TORQUE FOURTH
TORQUE THIRD
TORQUE EIGHTH
TORQUE SIXTH
TORQUE SECOND
TORQUE SEQUENCE
20x12
CD145-122-SPA

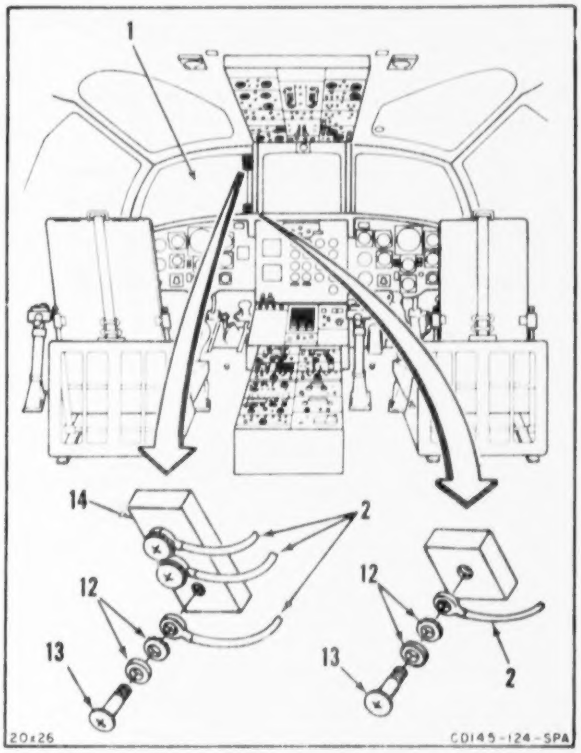
7. Hold wiper arm (4) and take out cotter pin (10) from hole near hub (11) of wiper arm.
8. **Lower wiper arm (4)** against windshield (1).


4
1
11
10
20x12
CD145-123-SPA

GO TO NEXT PAGE

2-46 INSTALL PILOT'S OR COPILOT'S WINDSHIELD (Continued) 2-46

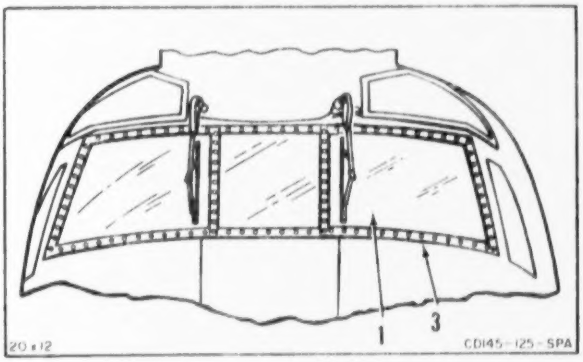
9. **From inside helicopter, install four wires (2), eight washers (12), and screws (13) in terminal blocks (14).** Remove tags as wires are installed.



WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

10. Apply sealant (E336) around top, inboard, and bottom edge of windshield (1). Make sealant flush with structure (3). Wear gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).

Perform windshield anti-icing system operational test (TM 55-1520-240-T).

END OF TASK

2-47 INSTALL CENTER WINDSHIELD 2-47

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand
Torque Wrench, 5 to 150 Inch-Pounds

Materials:

Sealant (E336)
Gloves (E186)

Personnel Required:

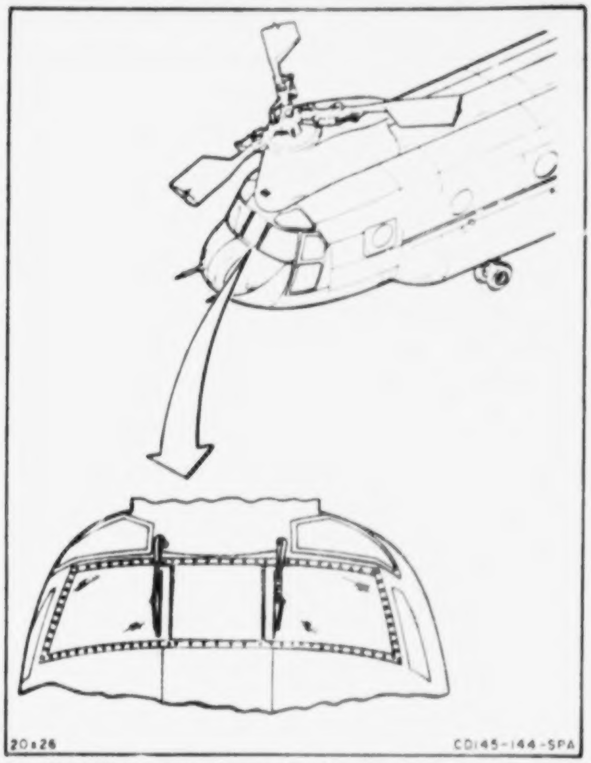
Medium Helicopter Repairer (2)
Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

Windshield Panel Heating Element And Sensors Tested (Task 12-2)



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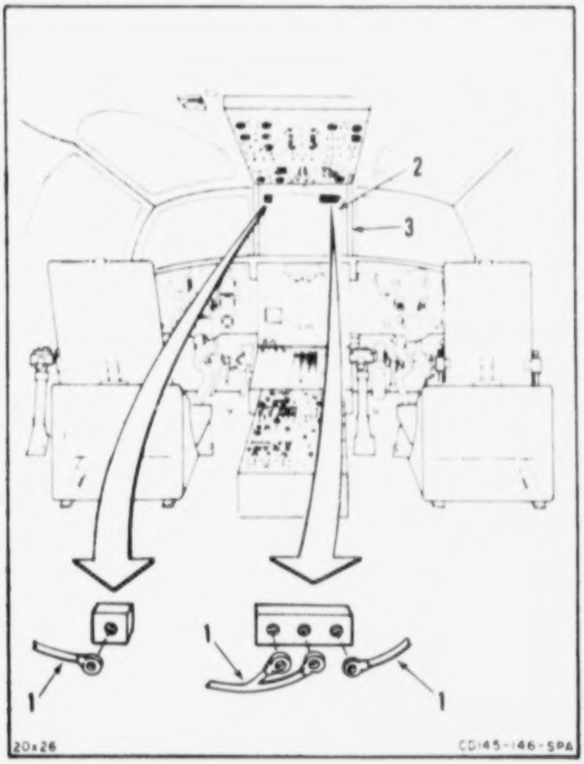
1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



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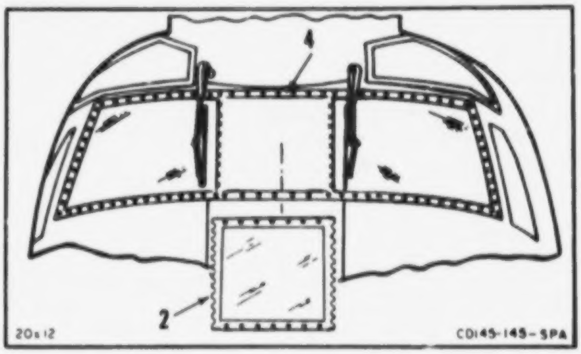
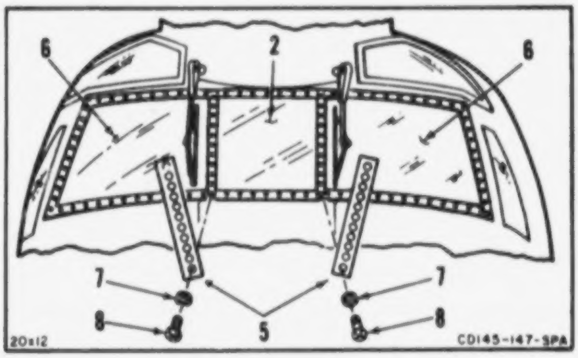
2-47 INSTALL CENTER WINDSHIELD (Continued) 2-47

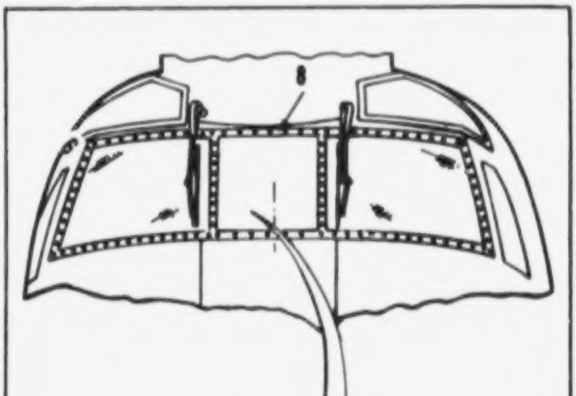
2. **Position windshield (2)** against rubber strip (4).


4
2
20x12
CD145-145-SPA

3. **Install two retainers (5)** in slots between windshield (2) and pilot's and copilot's windshields (6).
4. **Install 36 washers (7) and screws (8).**


6
2
6
7
7
8
5
8
20x12
CD145-147-SPA

5. **Torque screws (8) to 12 inch-pounds.** Torque screws alternately following torque sequence shown.


8
TORQUE FIRST
8
TORQUE FIFTH
TORQUE SEVENTH
TORQUE FOURTH
TORQUE EIGHT
TORQUE THIRD
TORQUE SIXTH
TORQUE SECOND
20x26
CD145-726-SPA

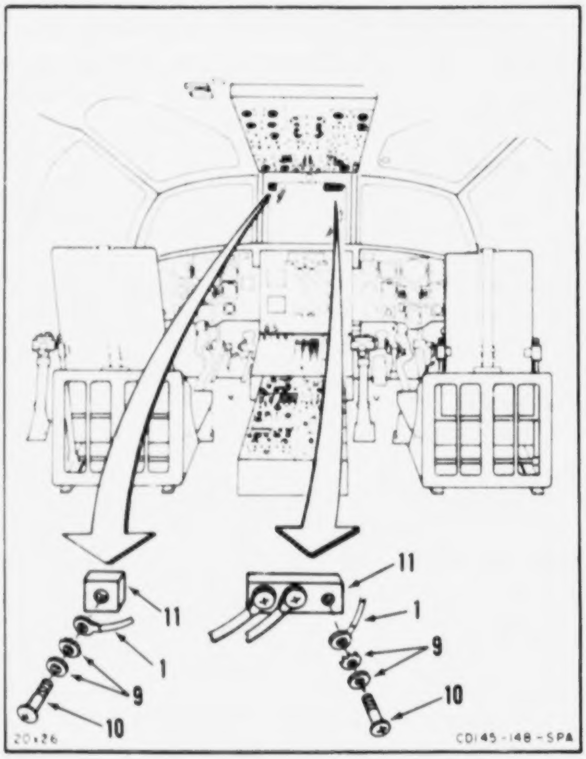
GO TO NEXT PAGE

2-47 INSTALL CENTER WINDSHIELD (Continued) 2-47

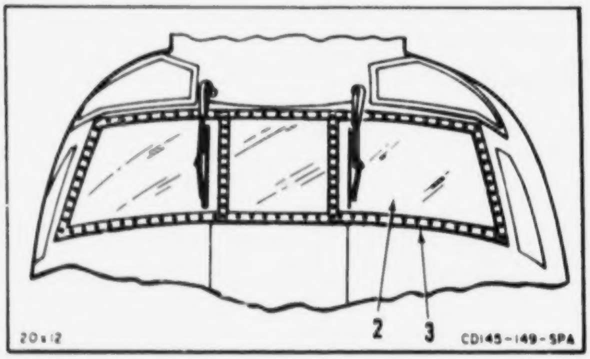
6. **From inside helicopter, install four wires (1), eight washers (9) and screws (10) in terminal blocks (11).** Remove tags as wires are installed.

WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.



7. Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).

Perform windshield heating element operational test (TM 55-1520-240-T).

END OF TASK

2-48 REMOVE PILOT'S OR COPILOT'S PLASTIC WINDSHIELD 2-48

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

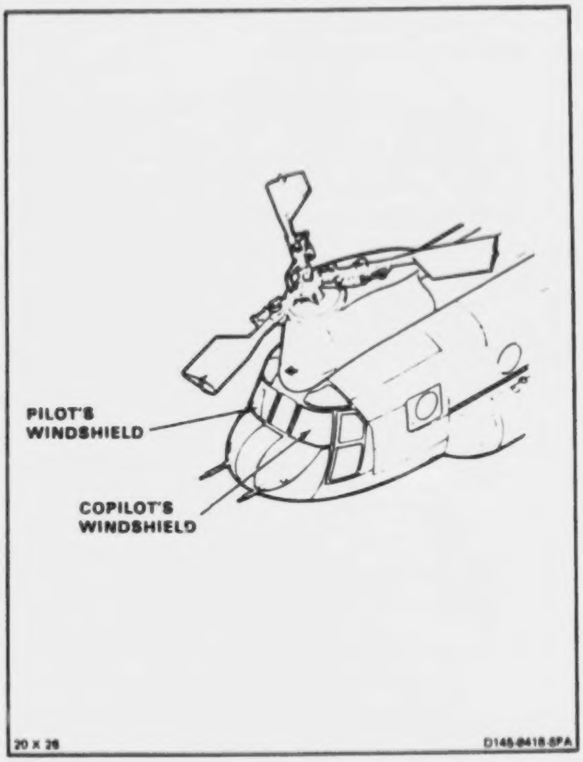
Materials:
Paper Tags

Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-45

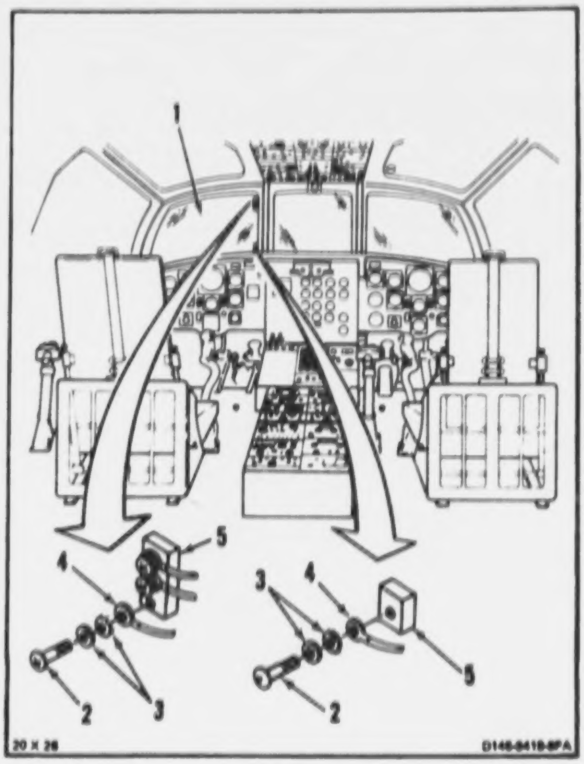
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


PILOT'S WINDSHIELD
COPILOT'S WINDSHIELD
20 X 26
D145-8418-5PA

NOTE

Procedure is same to remove pilot's or copilot's plastic windshield. Copilot's plastic windshield is shown here.

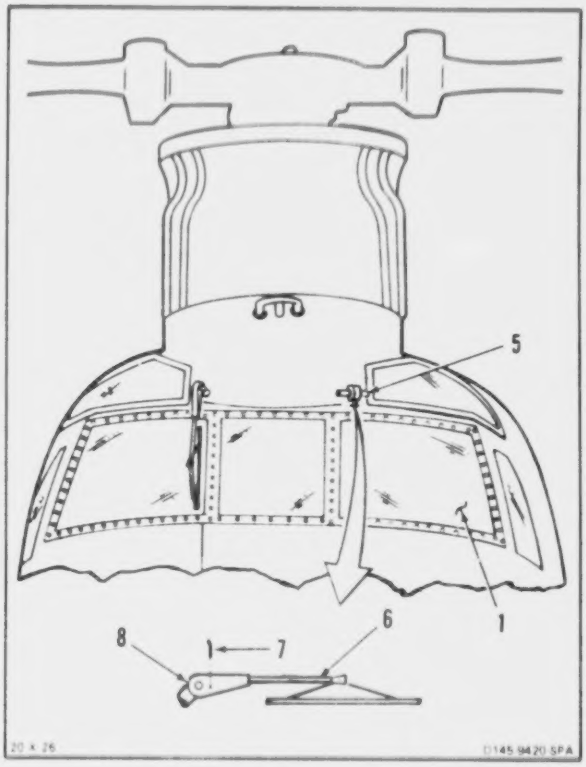
1. From inside windshield (1), **remove four screws (2), eight washers (3), and four wires (4), from terminal blocks (5).** Tag all wires as they are disconnected.


1
5
4
3
4
2
3
2
5
20 X 26
D145-8419-5PA

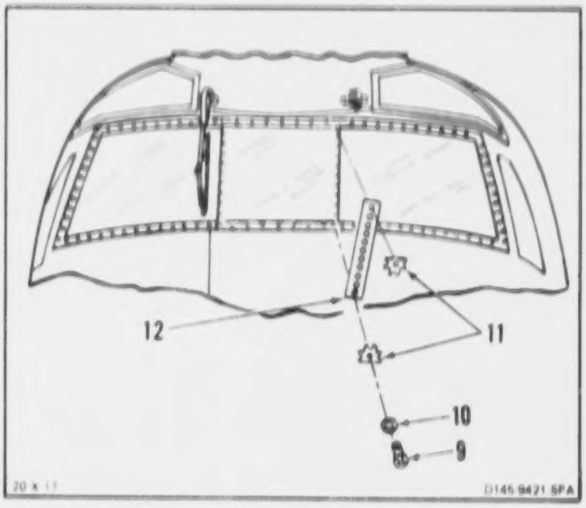
GO TO NEXT PAGE

2-48 REMOVE PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued) 2-48

2. From outside helicopter, **hold windshield wiper arm (6) away from windshield (1).**
3. **Put cotter pin (7) through hole in wiper arm (6)** near hub (8).

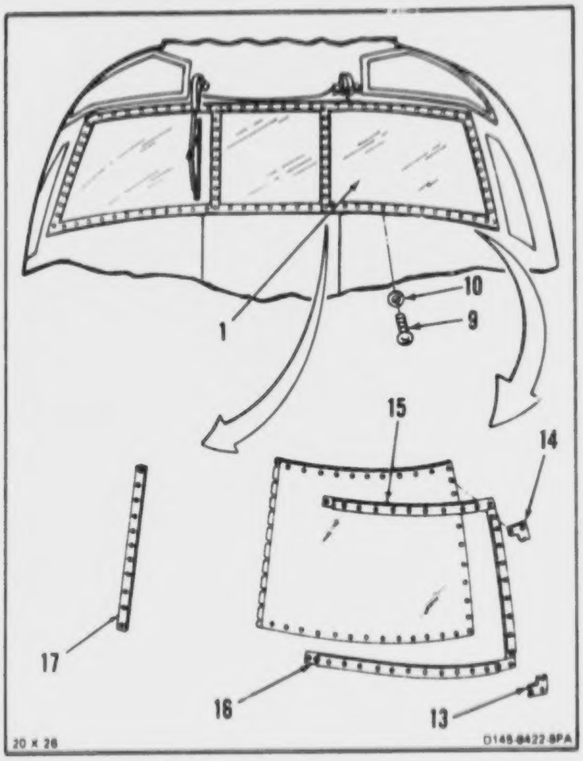

5
6
1
8
7
20 X 26
D145 9420 SPA

4. **Remove 11 screws (9) and washers (10).**
5. **Remove two T-retainers (11).**
6. **Remove retainer (12).**


12
11
10
9
20 X 11
D145 9421 SPA

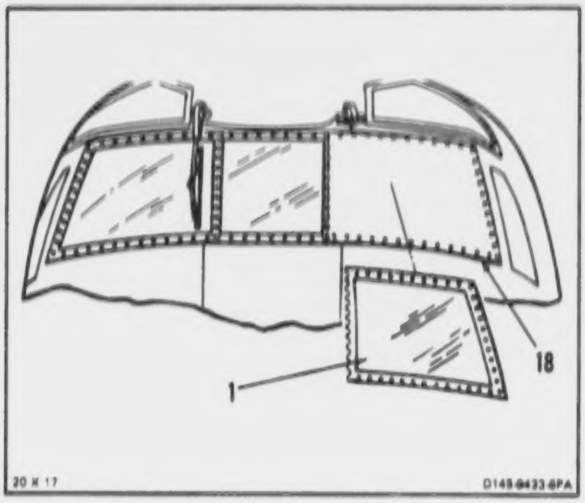
GO TO NEXT PAGE

2-48 REMOVE PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued) 2-48


1
10
9
15
14
17
16
13
20 X 26
D145-8422-8PA

7. **Remove other 34 screws (9) and washers (10)** from around windshield (1).

8. **Remove lower corner retainer (13), upper corner retainer (14), top retainer (15), bottom retainer (16), and filler retainer (17).**


18
1
20 X 17
D145-8423-8PA

9. **Remove windshield (1).**

10. **Check that rubber strip (18) is not loose, cut, or nicked.** If damaged or loose, replace strip (Task 2-45).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-49 REMOVE CENTER PLASTIC WINDSHIELD 2-49

INITIAL SETUP

Applicable Configurations:
All

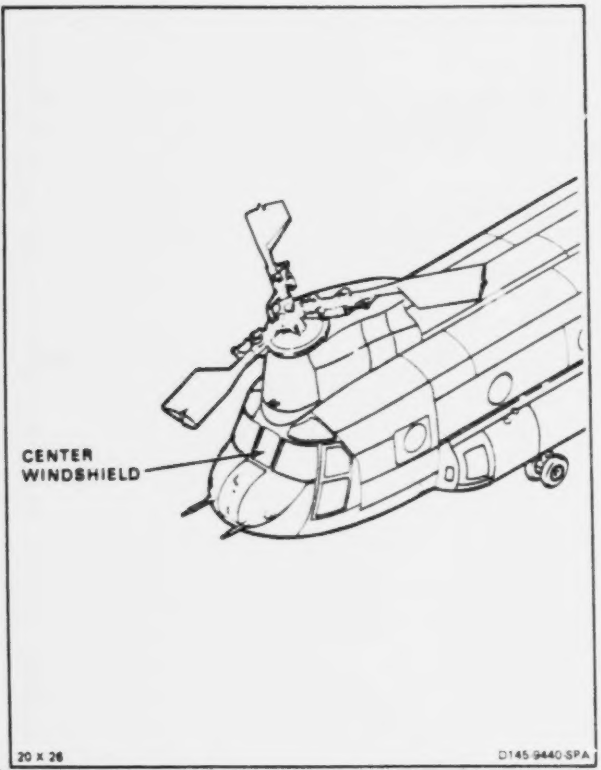
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
Paper Tags (E264)

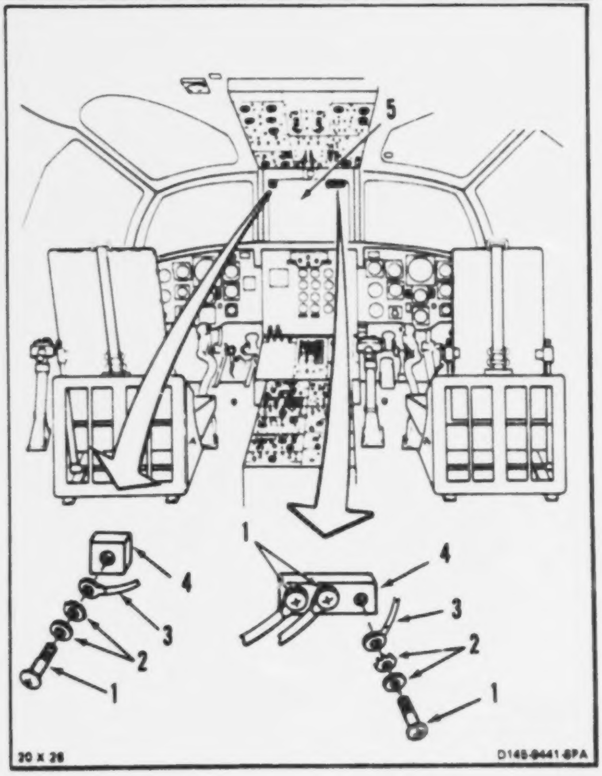
Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-45

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


CENTER WINDSHIELD
20 X 26
D145-9440-SPA

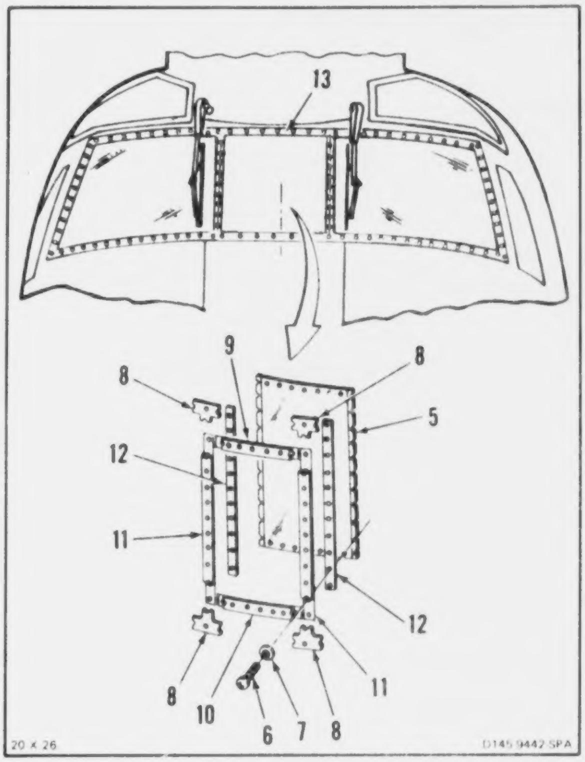
1. From inside helicopter, **remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4)** on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).


5
1
4
3
2
1
4
3
2
1
20 X 26
D145-9441-SPA

GO TO NEXT PAGE

2-49 REMOVE CENTER PLASTIC WINDSHIELD (Continued) 2-49

2. From outside helicopter, **remove 36 screws (6) and washers (7)** from around windshield (5).
3. **Remove four T-retainers (8), top retainer (9), bottom retainer (10), retainers (11), and filler retainers (12).**
4. **Remove windshield (5).**
5. **Check that rubber strip (13) is not loose, cut, or nicked.** If damaged or loose, replace strip (Task 2-45).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-50 INSTALL PILOT'S OR COPILOT'S PLASTIC WINDSHIELD

INITIAL SETUP

Applicable Configurations:
All

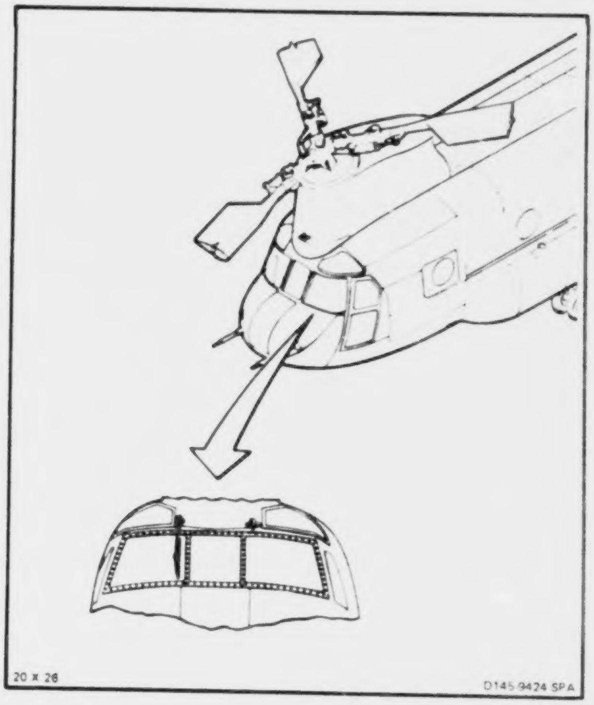
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Torque Wrench, 5 to 50 Inch-Pounds
Workstand

Materials:
Sealant (E336)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P

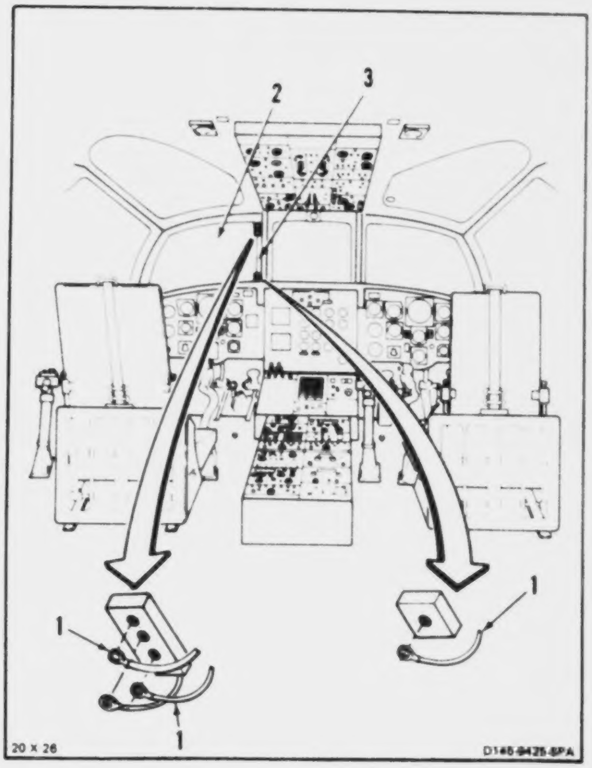
Equipment Condition:
Windshield Heating Element and Sensors Tested (Task 12-2)



NOTE

Procedure is same to install pilot's or copilot's plastic windshield. Copilot's plastic windshield is shown here.

1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



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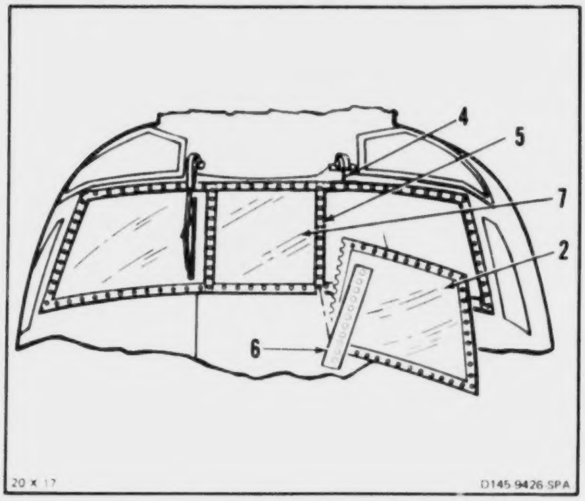
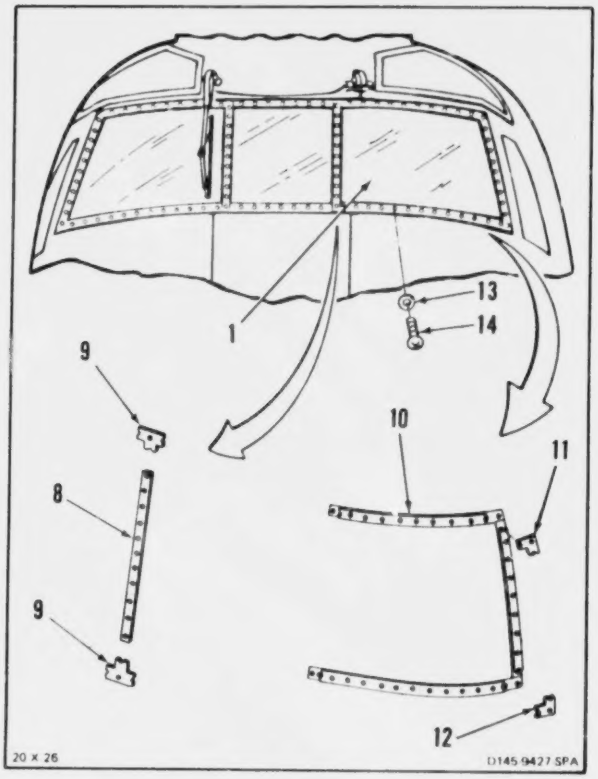
2-50 INSTALL PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued) 2-50


4
5
7
2
6
20 x 17
D145 9426 SPA

2. Make sure windshield wiper arm (4) is raised and held clear of installation area.

3. **Position windshield (2) against rubber strip (5).**

4. **Install filler retainer (6)** in slot between windshield (2) being installed and center windshield panel (7).


13
14
1
9
10
11
8
9
12
20 x 26
D145 9427 SPA

5. **Install retainer (8), and two T-retainers (9).**

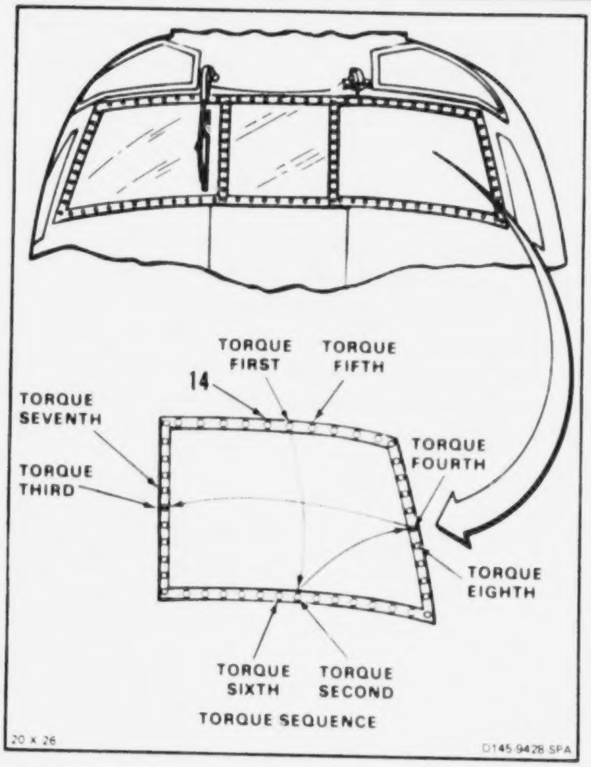
6. **Install retainer (10), and two corner retainers (11 and 12).**

7. **Install 45 washers (13) and screws (14).**

GO TO NEXT PAGE

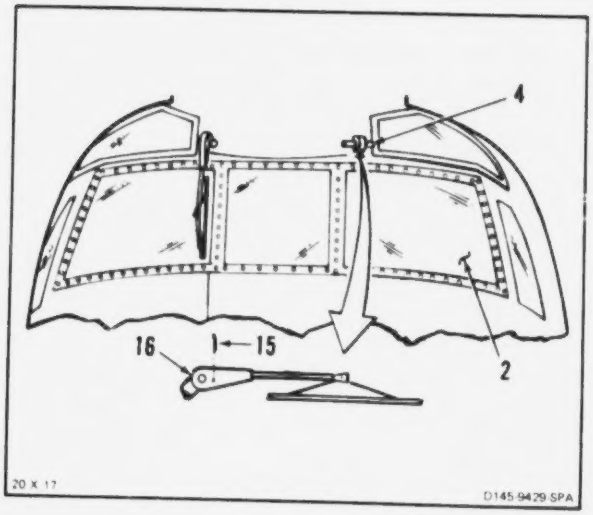
2-50 INSTALL PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued) 2-50

8. **Torque screws (14) to 12 inch-pounds.** Torque screws following torque sequence shown.


TORQUE FIRST
TORQUE FIFTH
14
TORQUE SEVENTH
TORQUE FOURTH
TORQUE THIRD
TORQUE EIGHTH
TORQUE SIXTH
TORQUE SECOND
TORQUE SEQUENCE
20 X 26
D145 9428 SPA

9. Hold wiper arm (4) and take out cotter pin (15) from hole near hub (16) of wiper arm.

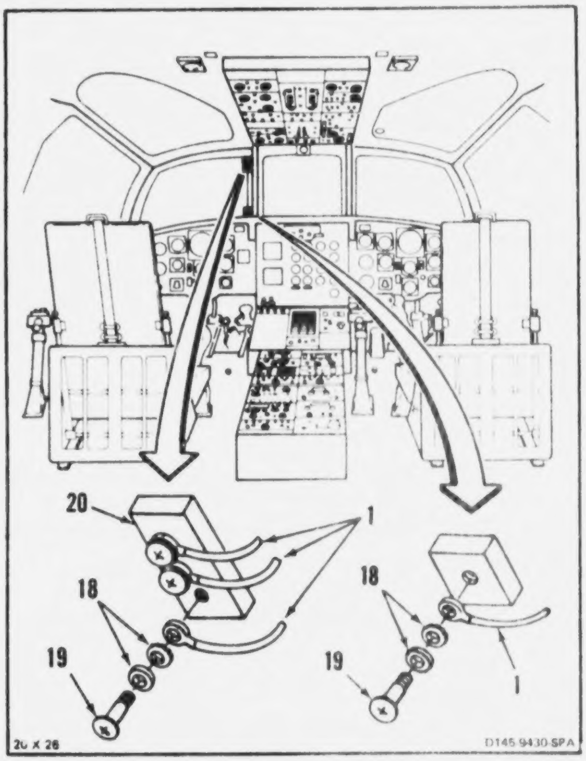
10. **Lower wiper arm (4)** against windshield (2).


4
16
15
2
20 X 17
D145 9429 SPA

GO TO NEXT PAGE

2-50 INSTALL PILOT'S OR COPILOT'S PLASTIC WINDSHIELD (Continued) 2-50

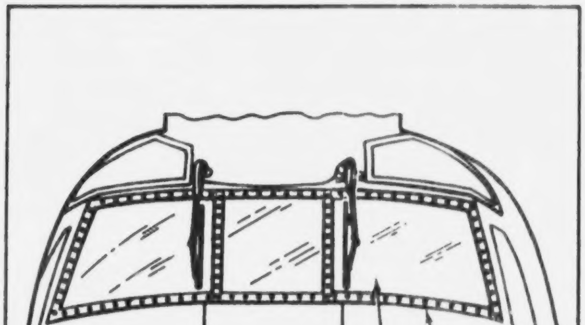
11. **From inside helicopter, install four wires (1), eight washers (18), and four screws (19) in terminal blocks (20).** Remove tags as wires are installed.



WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

12. Apply sealant (E336) around top, inboard, and bottom edge of windshield (2). **Make sealant flush with structure (3). Use gloves (E186).**



INSPECT

FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).

Perform windshield anti-icing system operational test (TM 55-1520-240-T).

END OF TASK

2-51 INSTALL CENTER PLASTIC WINDSHIELD 2-51

INITIAL SETUP

Applicable Configurations:
All

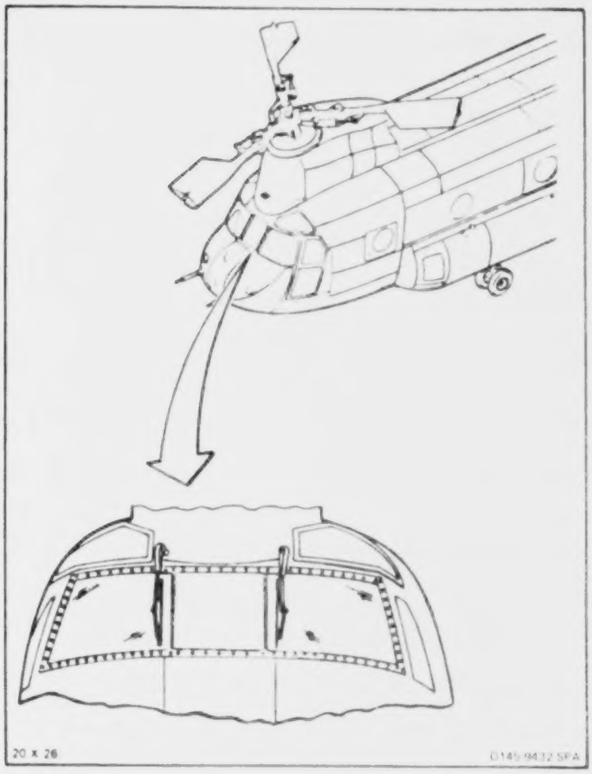
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand
Torque Wrench, 5 to 50 Inch-Pounds

Materials:
Sealant (E336)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

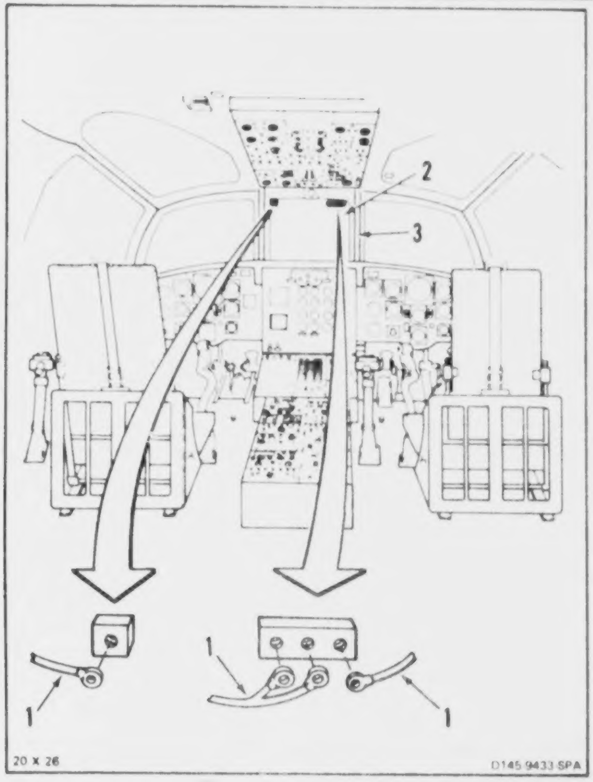
References:
TM 55-1520-240-23P

Equipment Condition:
Windshield Panel Heating Element and Sensors
Tested (Task 12-2)



---

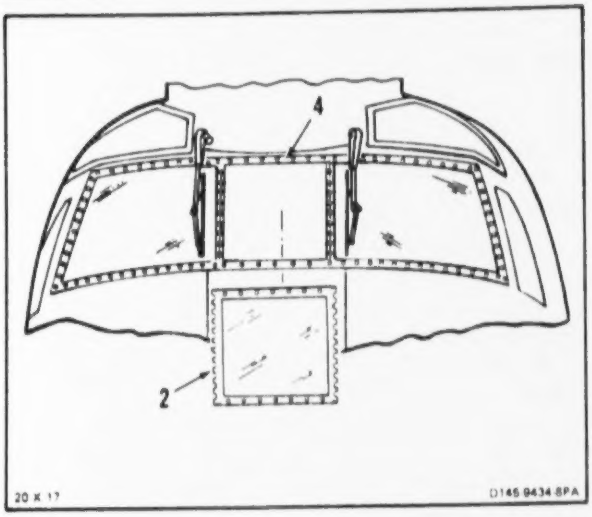
1. Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



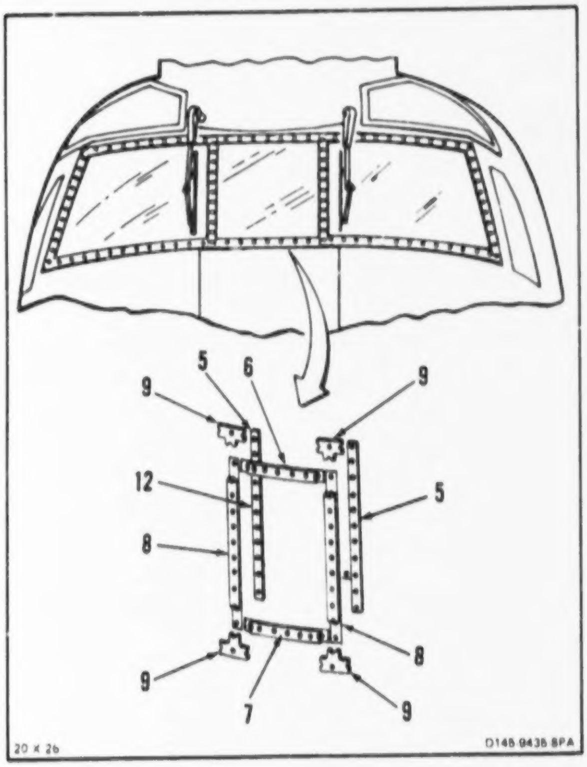
GO TO NEXT PAGE

2-51 INSTALL CENTER PLASTIC WINDSHIELD (Continued) 2-51

2. **Position windshield (2)** against rubber strip (4).


4
2
20 x 17
D145 9434 8PA

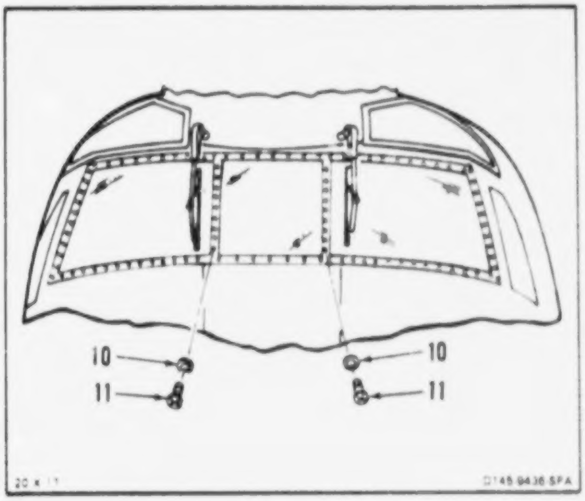
3. **Install two filler retainers (5).**
4. **Install upper retainer (6) and lower retainer (7).**
5. **Install two retainers (8).**
6. **Install four T-retainers (9).**


5
6
9
9
12
5
8
8
9
7
9
20 x 26
D145 9438 8PA

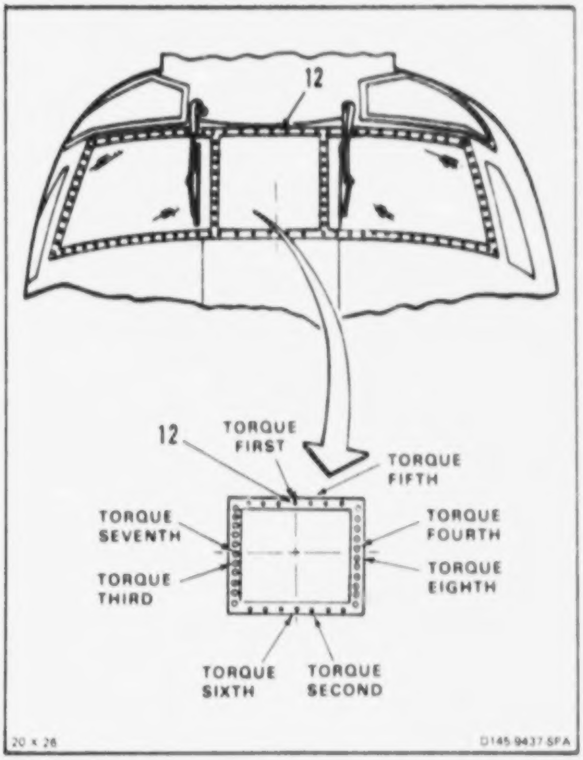
GO TO NEXT PAGE

2-51 INSTALL CENTER PLASTIC WINDSHIELD (Continued) 2-51

7 **Install 36 washers (10) and screws (11).**


10
11
10
11
20 x 11
D145 9436 SFA

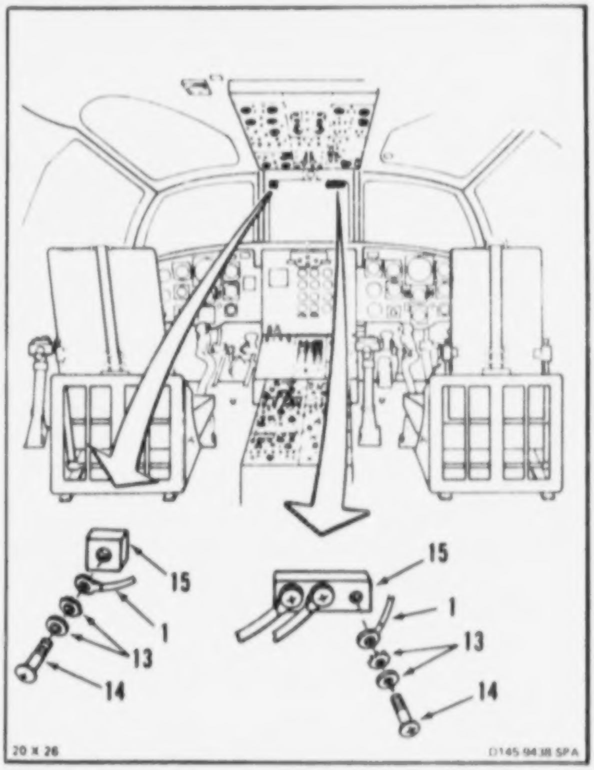
8. **Torque screws (12) to 12 inch-pounds.** Torque screws alternately following torque sequence shown.


12
12
TORQUE FIRST
TORQUE FIFTH
TORQUE SEVENTH
TORQUE FOURTH
TORQUE THIRD
TORQUE EIGHTH
TORQUE SIXTH
TORQUE SECOND
20 x 26
D145 9437 SFA

GO TO NEXT PAGE

2-51 INSTALL CENTER PLASTIC WINDSHIELD (Continued) 2-51

9 **From inisde helicopter, install four wires (1), eight washers (13), and screws (14)** in terminal blocks (15). Remove tags as wires are installed.



WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

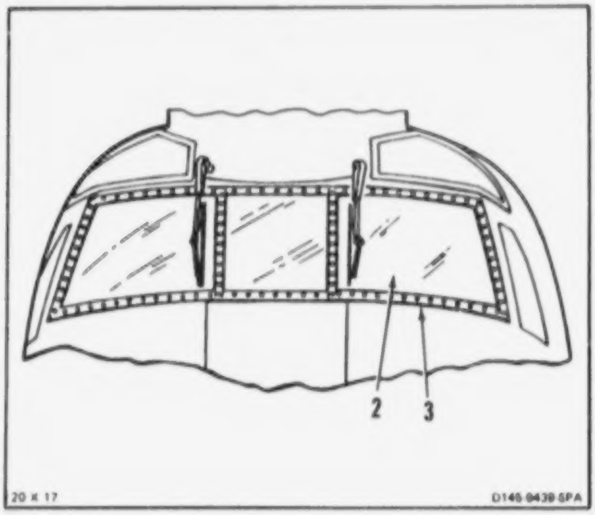
10 Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).

INSPECT

FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).

Perform windshield panel heating element operational test (Task 12-2).



END OF TASK

2-52 REMOVE CENTER WINDSHIELD, MIXED INSTALLATION

INITIAL SETUP

Applicable Configurations:
All

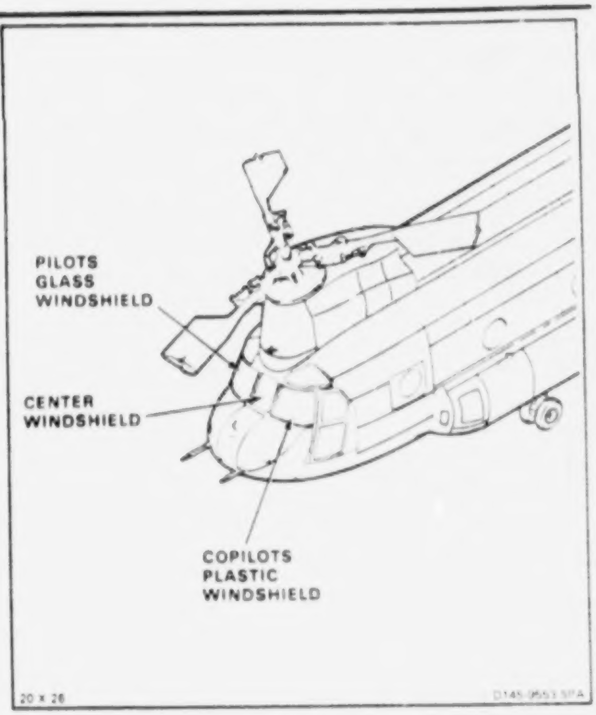
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
Paper Tags (E264)

Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-45

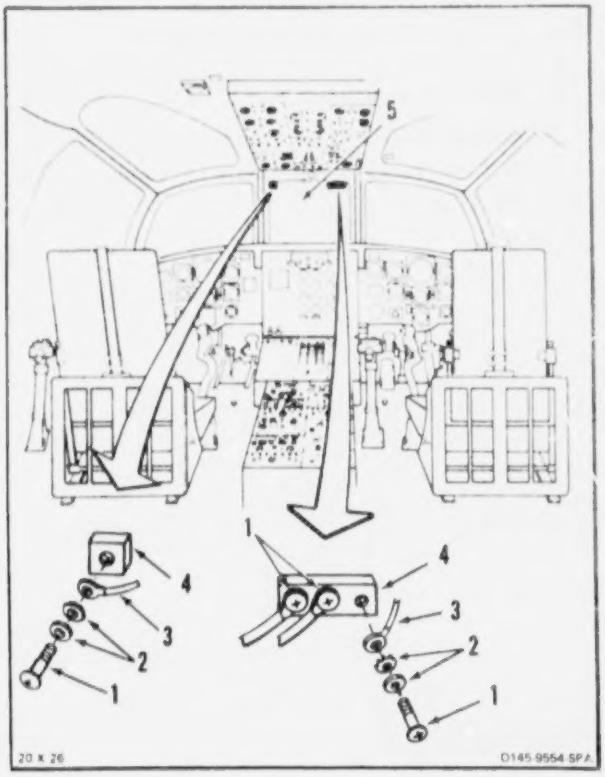
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


PILOTS GLASS WINDSHIELD
CENTER WINDSHIELD
COPILOTS PLASTIC WINDSHIELD
20 x 26
D145-9553 SPA

NOTE

Procedure is used to remove center windshield from between intermixed glass and plastic windshields. Pilot's glass windshield with copilot's plastic windshield shown here.

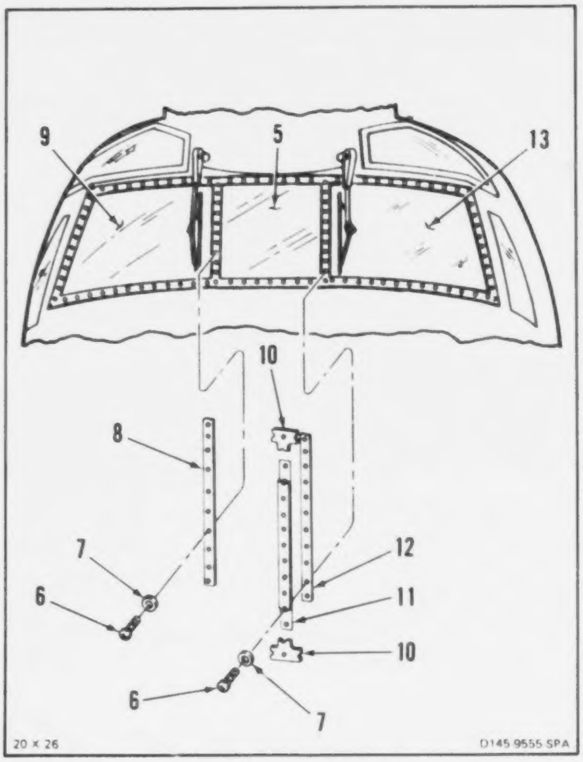
1. From inside helicopter, **remove four screws (1), eight washers (2), and four wires (3) from terminal blocks (4)** on windshield (5). Tag all wires as they are disconnected. Use paper tags (E264).


5
1
4
4
3
3
2
2
1
1
20 x 26
D145-9554 SPA

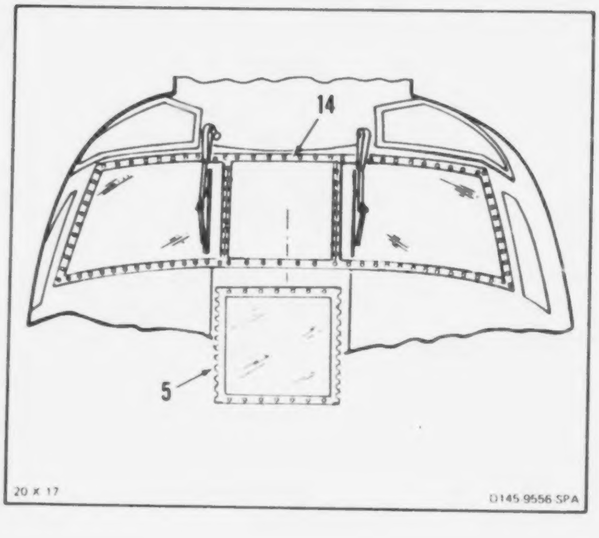
GO TO NEXT PAGE

2-52 REMOVE CENTER WINDSHIELD, MIXED INSTALLATION (Continued) 2-52

2. **Remove 36 screws (6)** and washers (7) from around center windshield (5).
3. **Remove retainer (8)** between center windshield (5) and glass windshield (9).
4. Remove two T-retainers (10), retainer (11), and filler retainer (12) between center windshield (5) and plastic windshield (13).


9
5
13
10
8
7
6
12
11
10
6
7
20 x 26
D145 9555 SPA

5. **Remove windshield (5).**
6. **Check that rubber strip (14) is not loose, cut, or nicked.** If damaged or loose, replace strip (Task 2-45).


14
5
20 x 17
D145 9556 SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-53 INSTALL CENTER WINDSHIELD, MIXED INSTALLATION 2-53

INITIAL SETUP

Applicable Configurations:
All

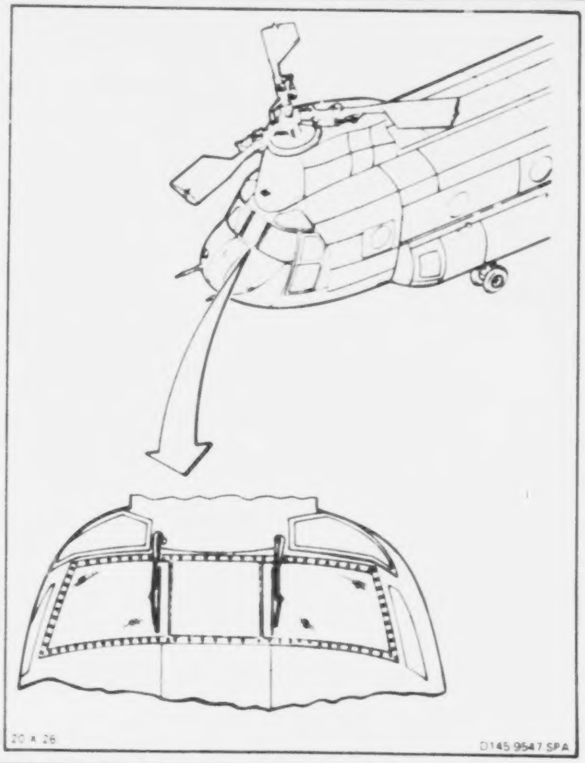
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand
Torque Screwdriver, 0 to 25 Inch-Pounds

Materials:
Sealant (E336)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P

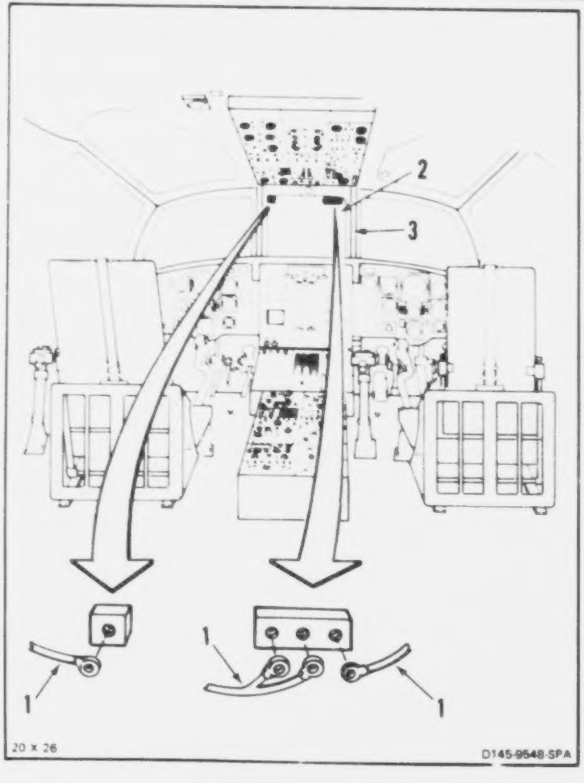
Equipment Conditions:
Windshield Panel Heating Element and Sensors Tested (Task 12-2)



NOTE

Procedure is used to install center windshield between intermixed glass and plastic windshields. Pilot's glass windshield with copilot's plastic windshield shown here.

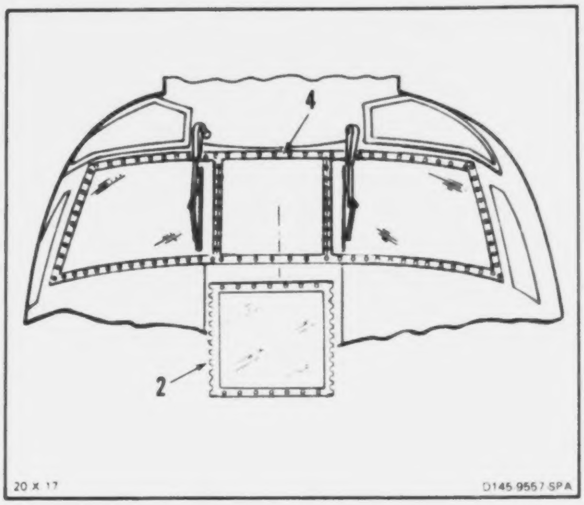
1 Have helper make sure all wires (1) on windshield (2) are free of support structure (3).



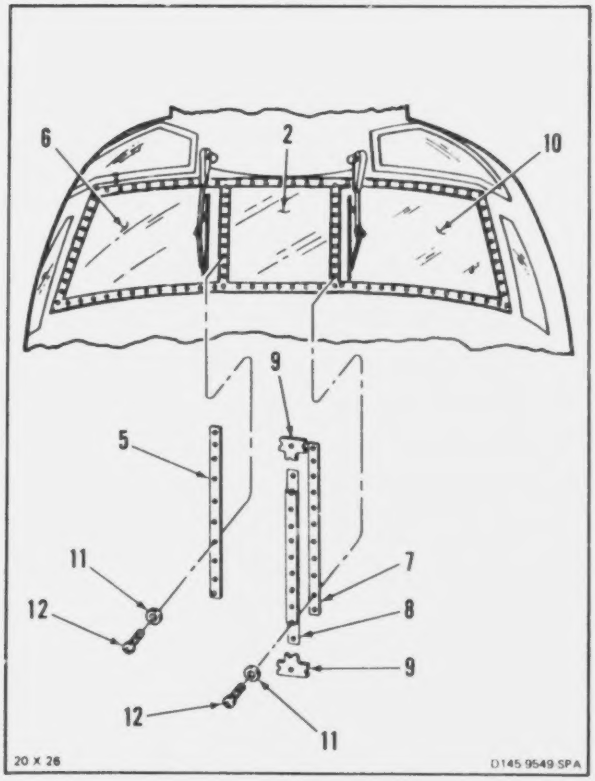
GO TO NEXT PAGE

2-53 INSTALL CENTER WINDSHIELD, MIXED INSTALLATION (Continued) 2-53

2. **Position windshield (2)** against rubber strip (4).


4
2
20 X 17
D145 9557 SPA

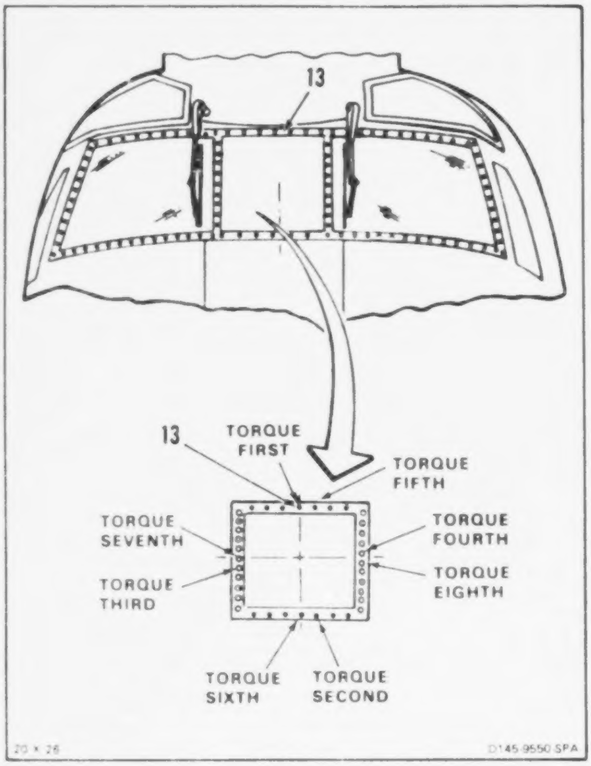
3. **Position retainer (5)** between center windshield (2) and glass windshield (6).
4. **Position filler retainer (7), retainer (8), and two T-retainers (9)** between center windshield (2) and plastic windshield (10).
5. **Install** 36 washers (11) and **screws (12).**


6
2
10
9
5
11
7
12
8
9
12
11
20 X 26
D145 9549 SPA

GO TO NEXT PAGE

2-53 INSTALL CENTER WINDSHIELD, MIXED INSTALLATION (Continued) 2-53

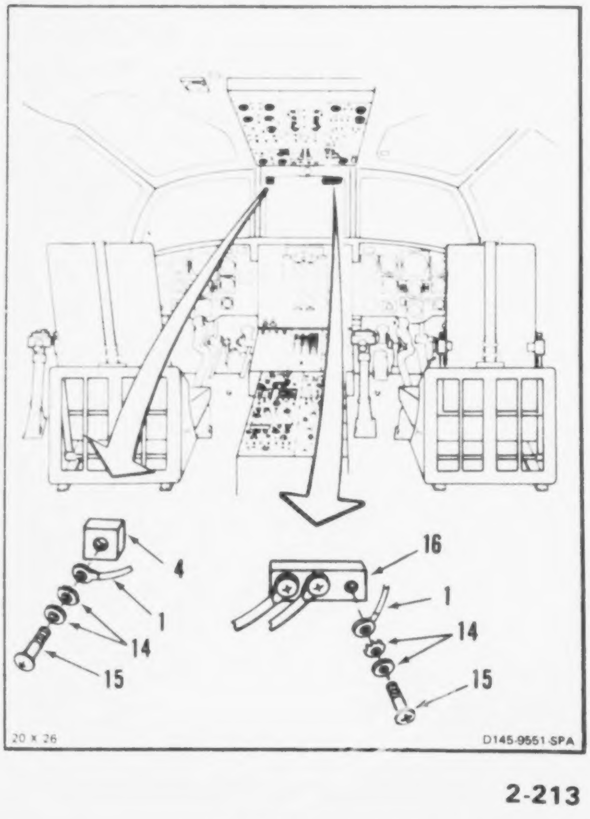
6 **Torque screws (13) to 12 inch-pounds.** Torque screws alternately following torque sequence shown


13
13
TORQUE FIRST
TORQUE FIFTH
TORQUE SEVENTH
TORQUE FOURTH
TORQUE THIRD
TORQUE EIGHTH
TORQUE SIXTH
TORQUE SECOND
20 x 26
D145-9550 SPA

7 **From inside helicopter, install four wires (1), eight washers (14), and four screws (15) in terminal blocks (16).** Remove tags as wires are installed

WARNING

Sealant (E336) may irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

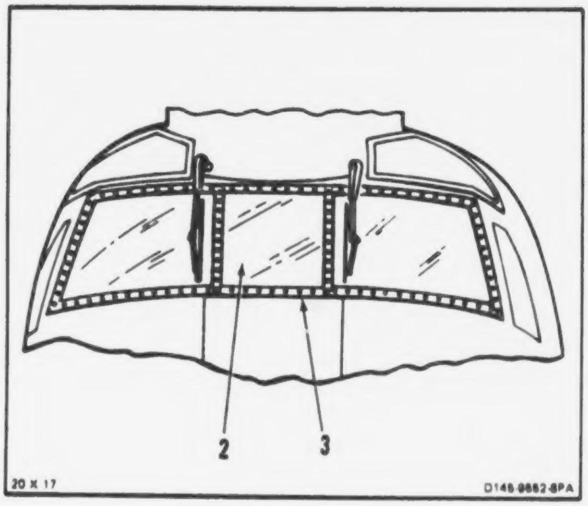

4
1
14
15
16
1
14
15
20 x 26
D145-9551-SPA

GO TO NEXT PAGE

2-53 INSTALL CENTER WINDSHIELD, MIXED INSTALLATION (Continued) 2-53

8. Apply sealant (E336) around edge of windshield (2). Make sealant flush with structure (3). Use gloves (E186).

INSPECT



FOLLOW-ON MAINTENANCE:

Check windshield for leaks (Task 2-61).

Perform windshield heating element operational test (Task 12-2).

END OF TASK

2-54 INSPECT COCKPIT WINDOWS

INITIAL SETUP

Applicable Configurations:
All

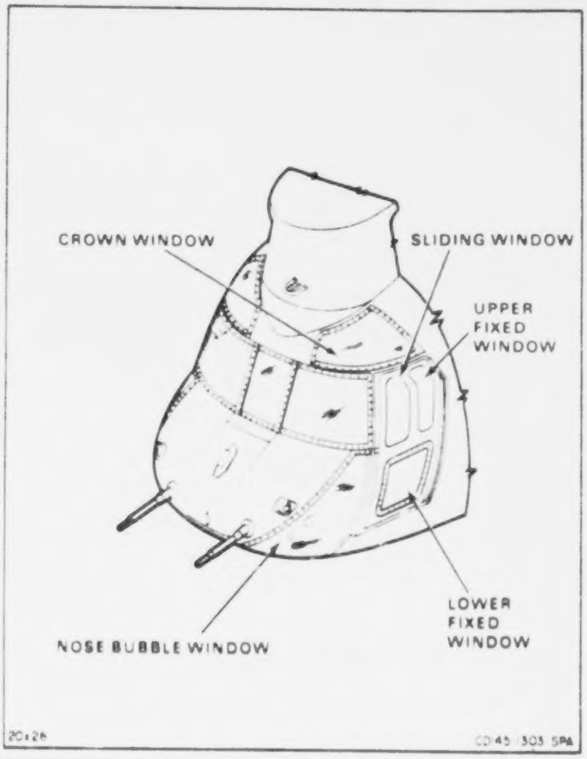
Tools:
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Inspector

Equipment Condition:
Cockpit Windows Clean (Task 1-77.1)

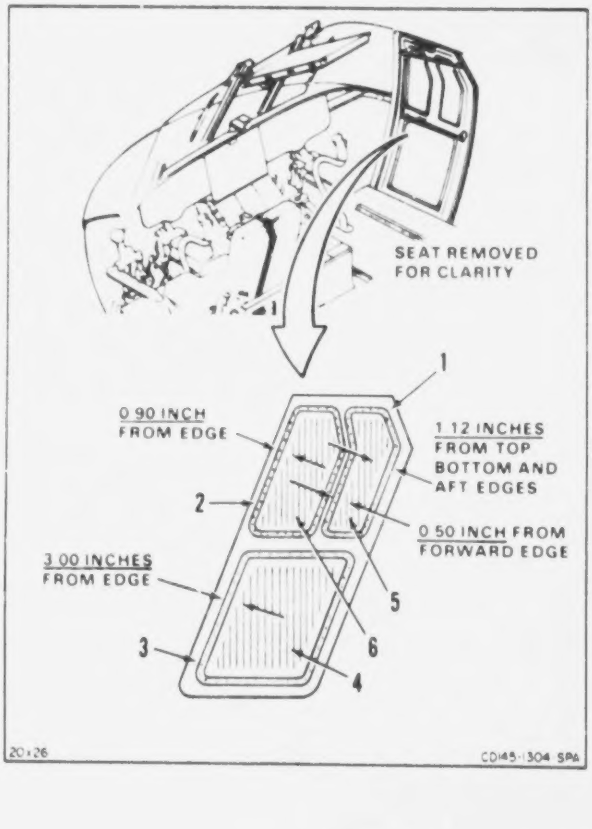
References:
Task 2-42


CROWN WINDOW
SLIDING WINDOW
UPPER FIXED WINDOW
LOWER FIXED WINDOW
NOSE BUBBLE WINDOW
20x26
CD45-1303 SPA

NOTE

- Procedure is same for pilot's or copilot's cockpit windows. Copilot's windows are shown here.
- Window discoloration will appear as a light brown or gold colored area.

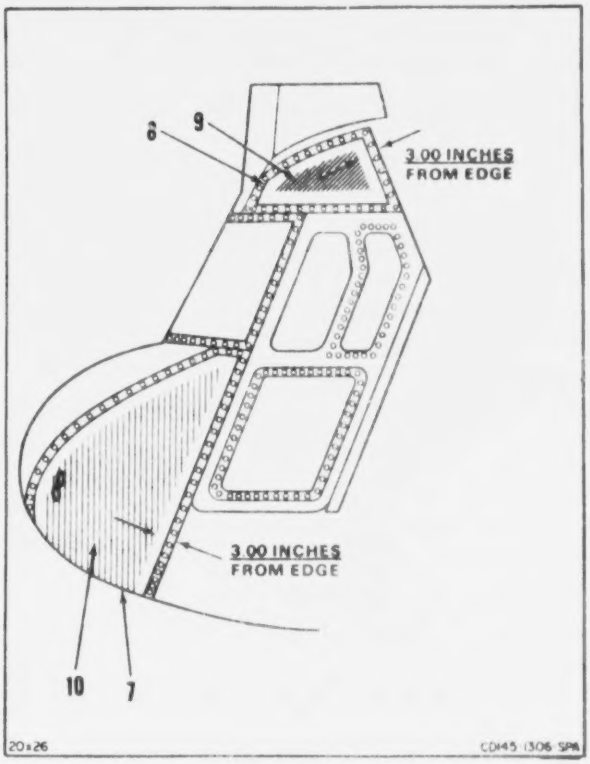
1. Inspect jettisonable door upper fixed window (1), sliding window (2) and lower fixed window (3). Cracks and crazing that reduce vision in critical areas (4, 5, and 6) are not allowed. Nicks, dents, scratches, blemishes, and discoloration in critical areas of windows 1, 2, and 3 are not allowed unless polishing can correct defects (Task 2-42). If polishing will not correct defects, window must be replaced.


SEAT REMOVED FOR CLARITY
1
0.90 INCH FROM EDGE
1.12 INCHES FROM TOP BOTTOM AND AFT EDGES
2
0.50 INCH FROM FORWARD EDGE
3.00 INCHES FROM EDGE
5
6
3
4
20x26
CD145-1304 SPA

GO TO NEXT PAGE

2-54 INSPECT COCKPIT WINDOWS (Continued) 2-54

2. Inspect nose bubble window (7) and crown window (8). Cracks and crazing that reduce vision through semi-critical areas (9 and 10) of windows (7 and 8) are not allowed. Nicks, dents, scratches, blemishes, and discoloration in critical areas are not allowed unless polishing can correct defects (Task 2-42). If polishing will not correct defects, window must be replaced.


8
9
3.00 INCHES FROM EDGE
8
3.00 INCHES FROM EDGE
10
7
20x26
CDI45 1306 SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-55 REMOVE COCKPIT CROWN WINDOW PANEL 2-55

INITIAL SETUP

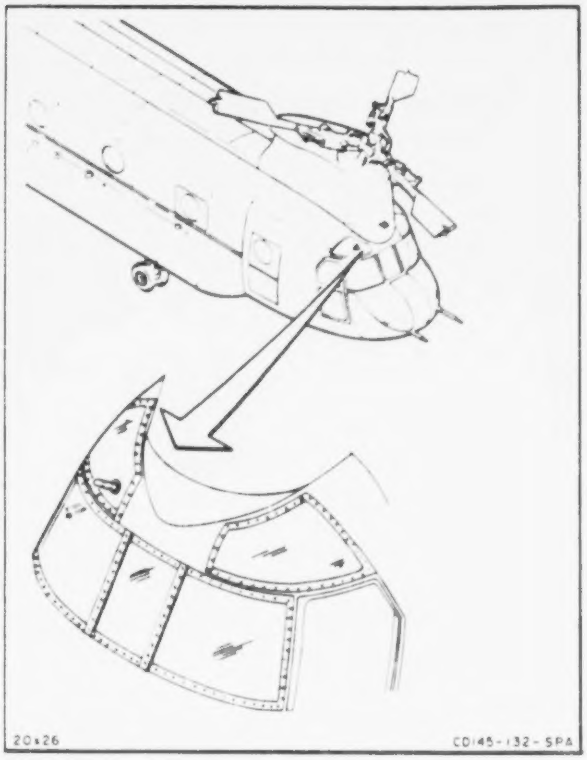
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
Sealant Tape (E348)

Personnel Required:
Medium Helicopter Repairer

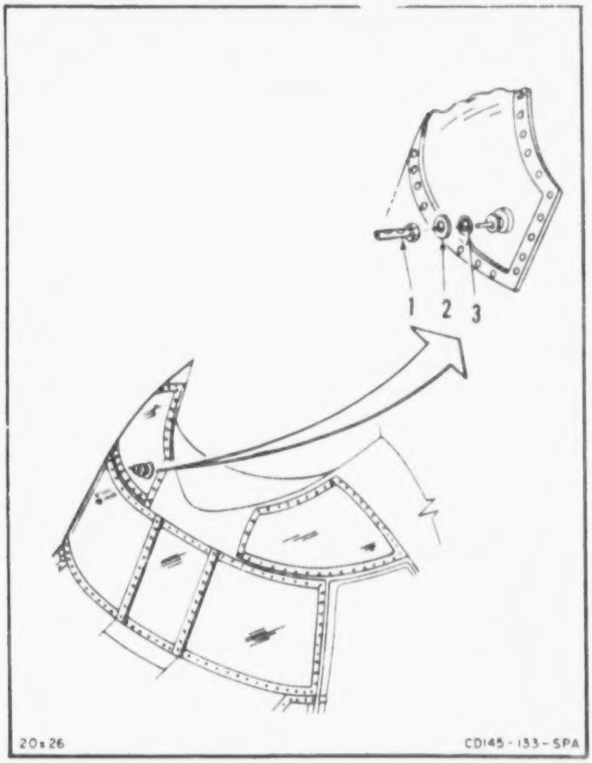
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedures are same for removing left or right side window panels, except for thermometer on right side. Right side is shown here.

1. **Remove sunshield (1),** washer (2), and rubber washer (3).



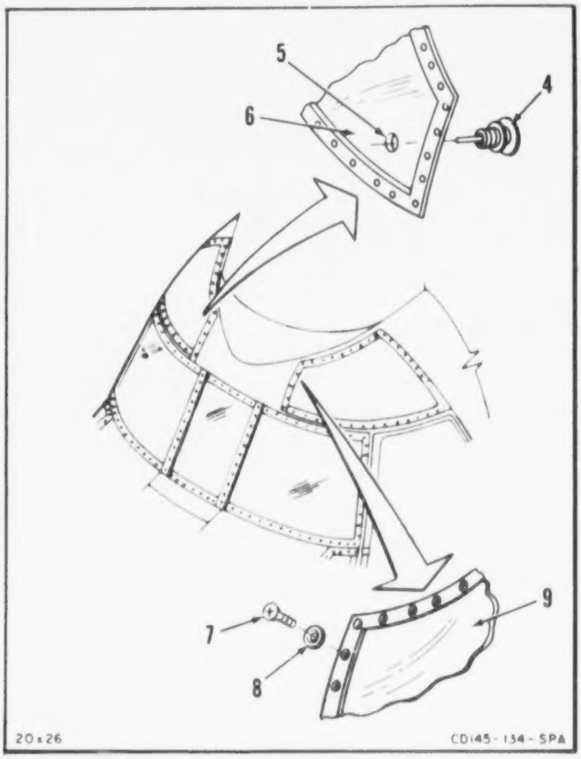
GO TO NEXT PAGE

2-55 REMOVE COCKPIT CROWN WINDOW PANEL (Continued) 2-55

2. **Remove thermometer (4)** from hole (5) in crown window panel (6).

3. **Remove 39 screws (7) and washers (8)** from panel (6 or 9). Lift off panel.

4. **Check sealant tape** on structure for tears or cuts. If damaged, replace sealant tape (E348).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-56 PREPARE NEW CROWN WINDOW PANEL FOR INSTALLATION 2-56

INITIAL SETUP

Applicable Configurations:
All

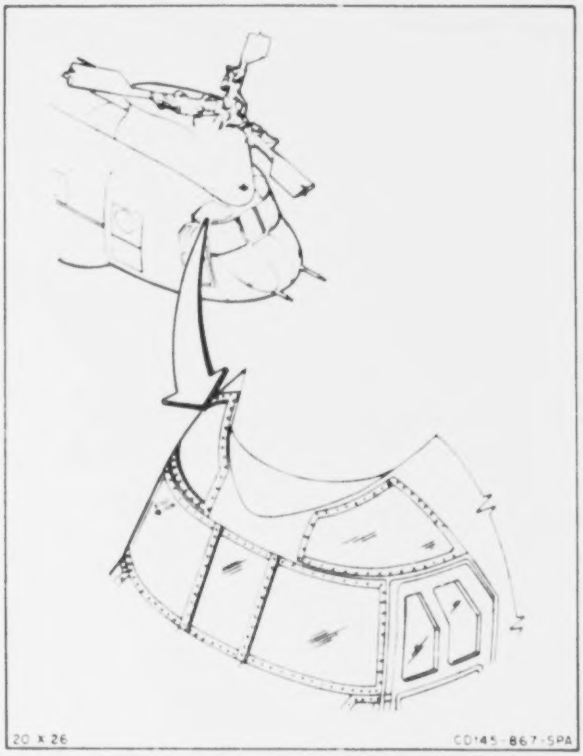
Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Workstand

Materials:
Wood Block, 2 inch x 4 inch x 4 inch

Personnel Required:
68G10 Aircraft Structural Repairer
68G20 Aircraft Structural Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cockpit Crown Window Panel Removed (Task 2-55)

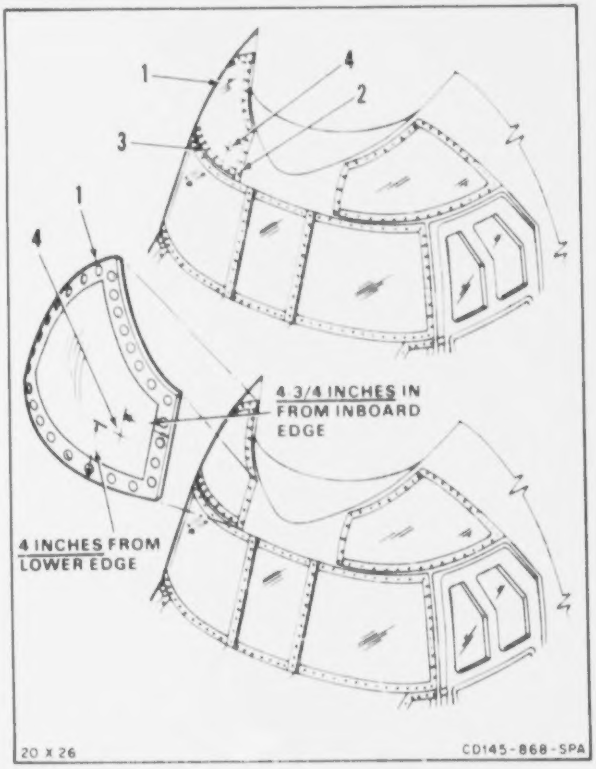
References:
TM 55-1520-240-23P



NOTE

- Procedures are same for preparing left or right crown window panel for installation. Preparation of right panel is shown here.
- Thermometer is installed in right panel only.

1. **Position window panel (1)** on support structure frame (2). Have helper hold panel in position.
2. **Mark locations for 39 screw holes (3)** around edge of panel (1). Use holes in frame (2) as a guide.
3. **Mark location for thermometer mounting hole (4).** Locate hole 4 inches from lower edge and 4-3/4 inches in from inboard edge of window panel (1).
4. **Remove panel (1)** from structure frame (2).



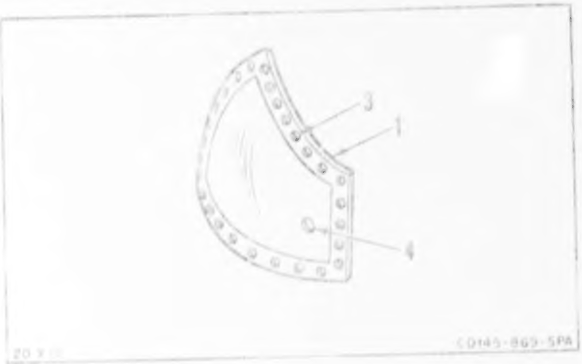
GO TO NEXT PAGE

2-56 PREPARE NEW CROWN WINDOW PANEL FOR INSTALLATION (Continued)

CAUTION

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

5. **Drill 39 screw holes (3)** at locations marked on edge of panel (1). Use 60 degree 15/32-inch drill. **Countersink 39 holes.** Use 100 degree countersink.
6. **Drill thermometer mounting hole (4)** at location marked. Use 60 degree 25/64-inch drill.

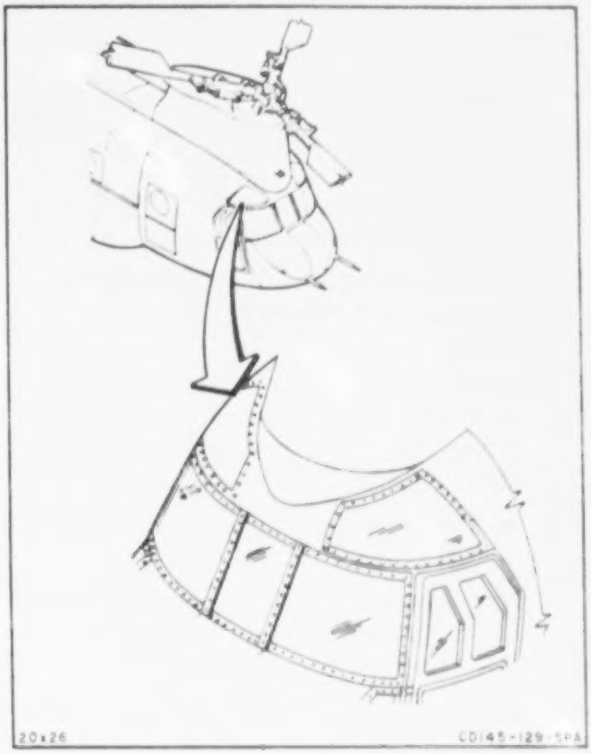


FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-57 INSTALL COCKPIT CROWN WINDOW PANEL 2-57



INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Workstand

Torque Screwdriver, 0 to 25 Inch-Pounds

Materials:

Sealant (E336)

Gloves (E186)

Sealant Tape (E348.1)

Personnel Required:

Medium Helicopter Repairer

Inspector

References:

TM 55-1520-240-23P

Task 2-56

General Safety Instructions:

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

NOTE

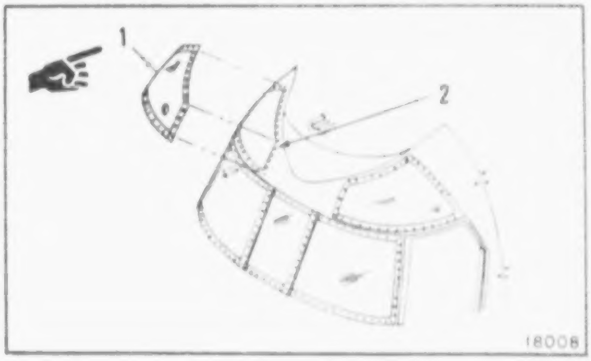
Procedures are same for installing left or right window panel, except for thermometer on right side. Right side is shown here.

1. Prepare new window panel for installation (Task 2-56).

1.1. Check sealant tape on cockpit structure for tears or cuts. If damaged, replace tape (E348.1).

2. Install crown window panel (1) against sealant tape on cockpit structure (2).

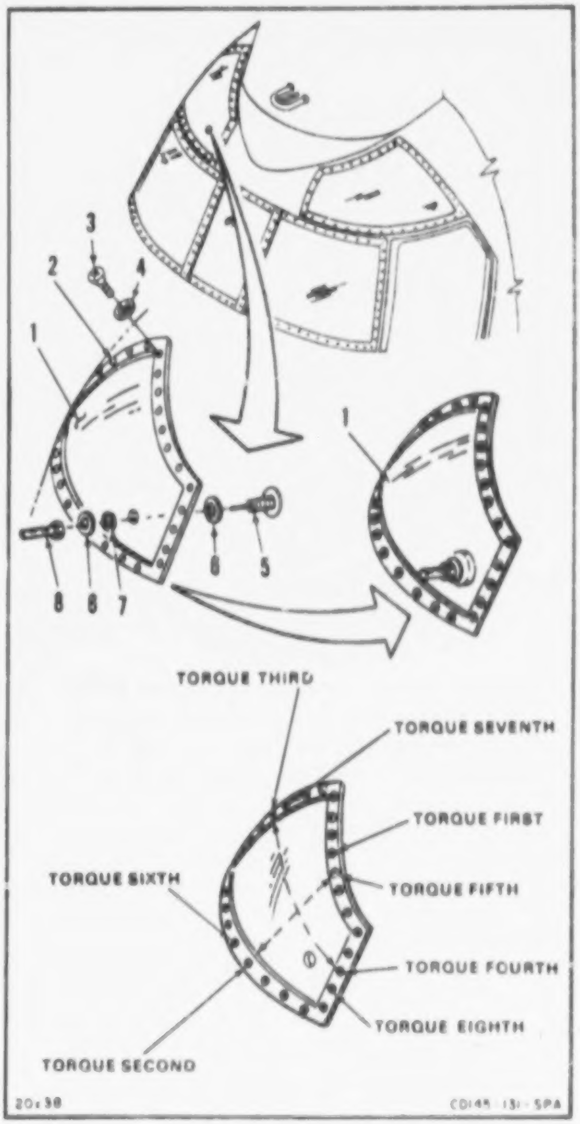
3. Make sure holes in panel (1) align with holes in cockpit structure (2).



GO TO NEXT PAGE

2-57 INSTALL COCKPIT CROWN WINDOW PANEL (Continued) 2-57

4. **Apply sealant (E336)** between each screw (3) and washer (4) and between each washer (4) and panel (1). Wear gloves (E186).
5. **Install 39 screws (3) and washers** (4) in panel (1) and cockpit structure (2).
6. **Torque screws (3) to 12 inch-pounds.** Torque screws following torque sequence shown.
7. **Insert thermometer** (5) through rubber washer (6) and hole in panel (1) from inside cockpit. Install rubber washer (6) and washer (7) on thermometer from outside.
8. **Install sunshield** (8) on thermometer (5) on outside.
9. **Apply sealant (E336)** around edge of panel (1). Make sealant flush with surrounding structure. Wear gloves (E186).


3
2
4
1
1
8
6
7
6
5
TORQUE THIRD
TORQUE SEVENTH
TORQUE FIRST
TORQUE SIXTH
TORQUE FIFTH
TORQUE FOURTH
TORQUE EIGHTH
TORQUE SECOND

INSPECT

FOLLOW-ON MAINTENANCE:

Check panel for leaks (Task 2-61).

END OF TASK

2-58 REMOVE COCKPIT NOSE BUBBLE WINDOW PANEL 2-58

INITIAL SETUP

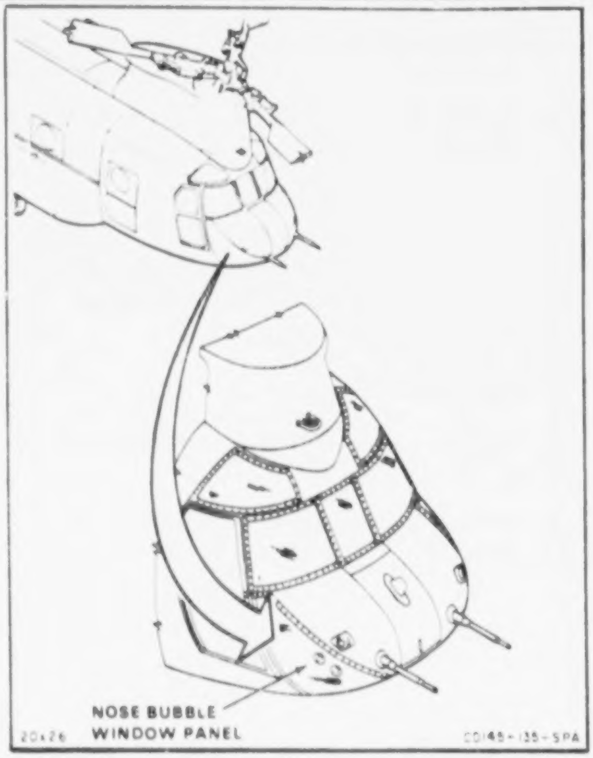
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

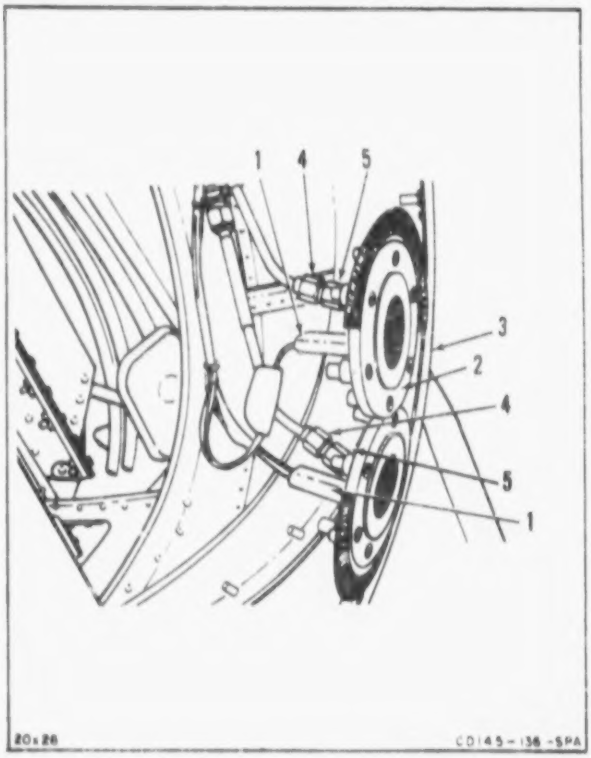
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


NOSE BUBBLE WINDOW PANEL
20x26
CD145-135-SPA

NOTE

Procedures are same for removing left or right bubble window panel. Right side is shown here.

1. **Unplug electrical connectors (1)** from sideslip port adapters (2) inside window panel (3).
2. **Disconnect tube (4)** from fitting (5) on adapter (2) inside window panel (3).


1
4
5
3
2
4
5
1
20x26
CD145-136-SPA

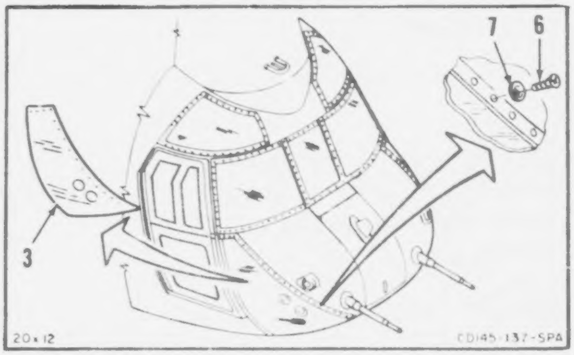
GO TO NEXT PAGE

2-58 REMOVE COCKPIT NOSE BUBBLE WINDOW PANEL (Continued) 2-58

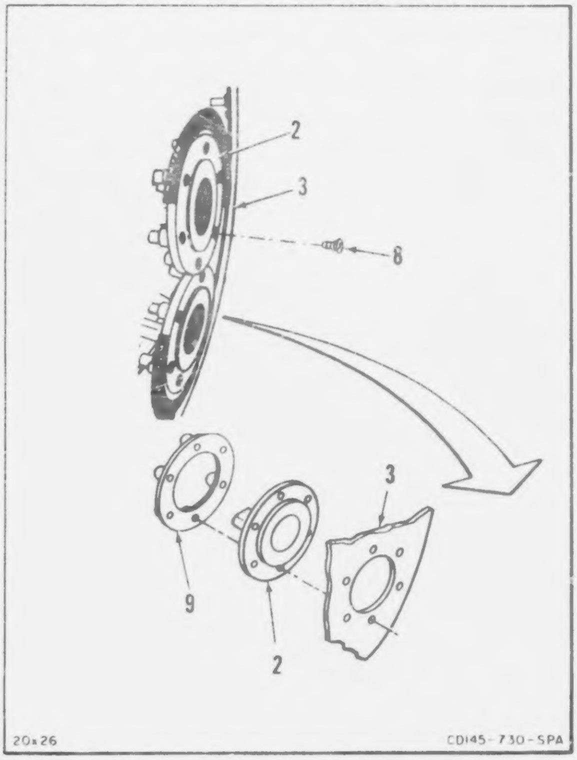
3. **Remove 76 screws (6) and washers (7) from panel (3)** and structure. Lift off panel.
4. **Check sealant tape on cockpit structure** for tears or cuts. If damaged, replace tape.

NOTE

If window panel is being removed for access only, task is complete following step 4. If window panel is being replaced, do steps 5. and 6.



5. Remove six screws (8) from each adapter (2) on panel (3).
6. Remove retainer (9) and adapter (2) from panel (3).

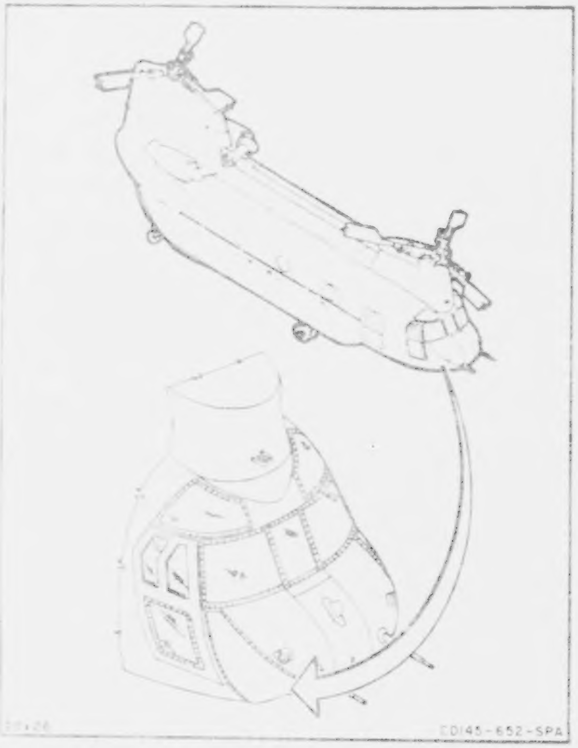


FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-59 PREPARE NEW NOSE BUBBLE WINDOW PANEL FOR INSTALLATION 2-59



INITIAL SETUP

Applicable Configuration:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:

Cement (E102)
Cleaning Cloth (E120)
Glass Cloth (E133)
Naphtha (E245)
Gloves (E186)
Wood Block, 2-Inches X 4-Inches X 4-Inches

Personnel Required:

67U10 Medium Helicopter Repairer
68G20 Aircraft Structural Repairer

References:

TM 55-1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Nose Bubble Window Panel Removed (Task 2-58)

General Safety Instructions:

WARNING

Cement (E102) and naphtha (E245) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

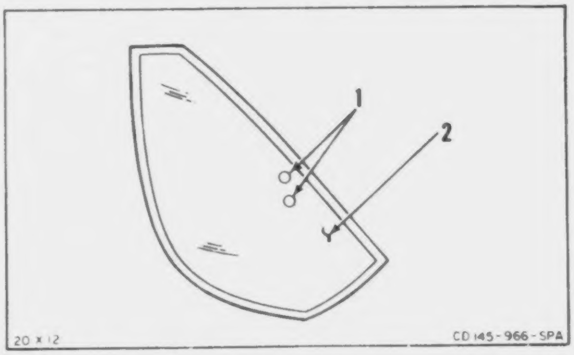
GO TO NEXT PAGE

2-59 PREPARE NEW NOSE BUBBLE WINDOW PANEL FOR INSTALLATION (Continued) 2-59

NOTE

Procedures are same for preparing left or right nose bubble window panel for installation. Right side is shown here.

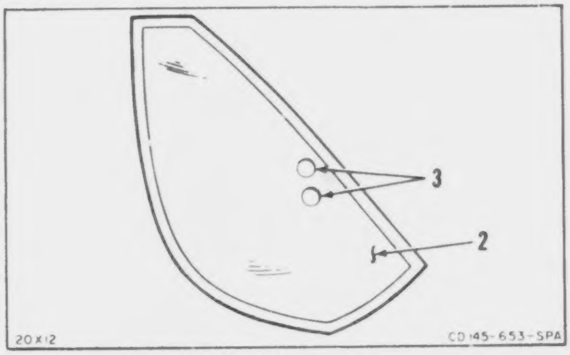
1. **Find two port locations** marked by 1/2-inch diameter marking (1) on surface of panel (2).


1
2
20 x 12
CD 145-966-SPA

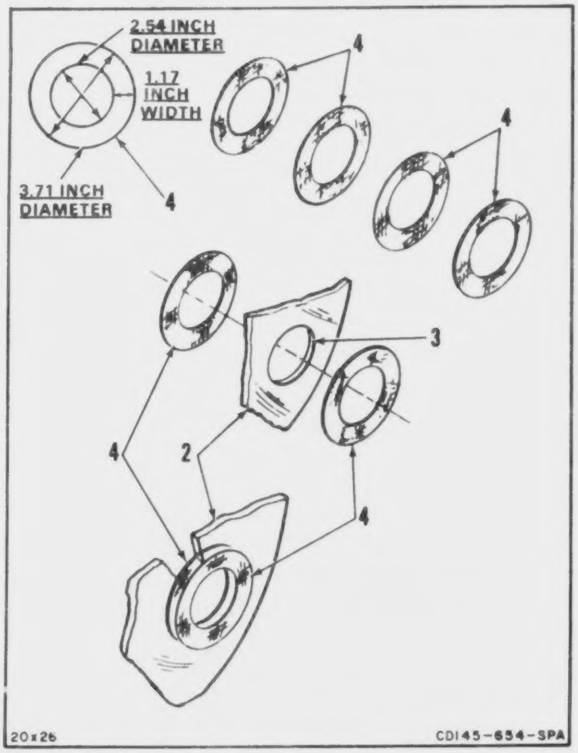
CAUTION

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

2. **Locate center point marks for ports (3).**
3. **Support panel (2) on wood block. Cut a 2.54-inch diameter hole at each port (3)** location in panel (2).


3
2
20x12
CD 145-653-SPA

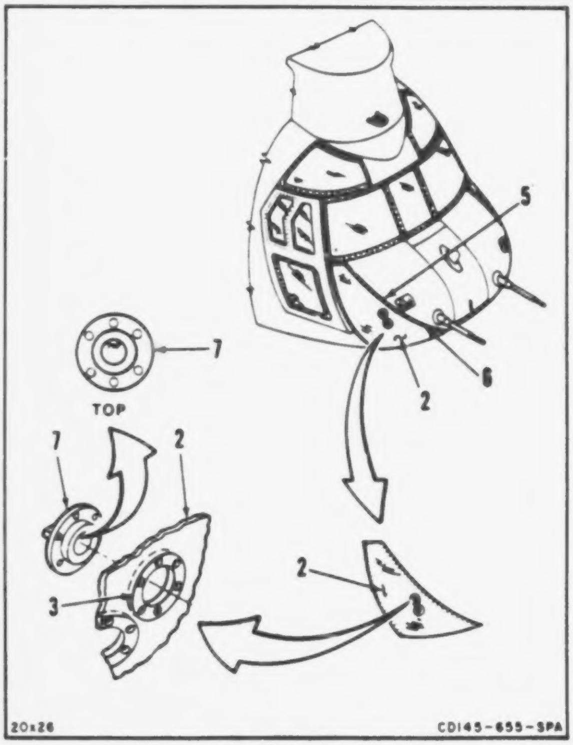
4. **Make two reinforcing strips (4) with two plies of glass cloth (E133) for each port.** Cover each cloth strip with cement (E102) and press together while wet. Wear gloves (E186). Let strips dry.
5. **Clean reinforcing strips (4)** with naphtha (E245). Clean inside and outside surfaces of panel (2) around mounting holes (3).
6. **Apply cement (E102) to reinforcing strips (4). Apply cement** around each hole (3) on inner and outer surfaces of panel (2). Wear gloves (E186).


2.54 INCH DIAMETER
1.17 INCH WIDTH
3.71 INCH DIAMETER
4
4
4
3
4
2
4
20x26
CD145-654-SPA

GO TO NEXT PAGE

2-59 PREPARE NEW NOSE BUBBLE WINDOW PANEL FOR INSTALLATION (Continued) 2-59

7. Position window panel (2) on support structure frame (5).
8. **Mark location for 76 screw holes (6)** around edge of panel (2), using holes in frame (5) as a guide.
9. **Position port adapters (7) in mounting holes in panel (2).** Make sure TOP mark is up. Make sure upper and lower bolt holes in flanges of adapters (7) are on vertical center line.
10. **Mark 12 screw hole locations for mounting holes of ports (3).** Use flanges of adapter (7) as a guide.
11. **Remove port adapters (7) from panel (2).**
12. **Remove panel (2) from structure (5).**



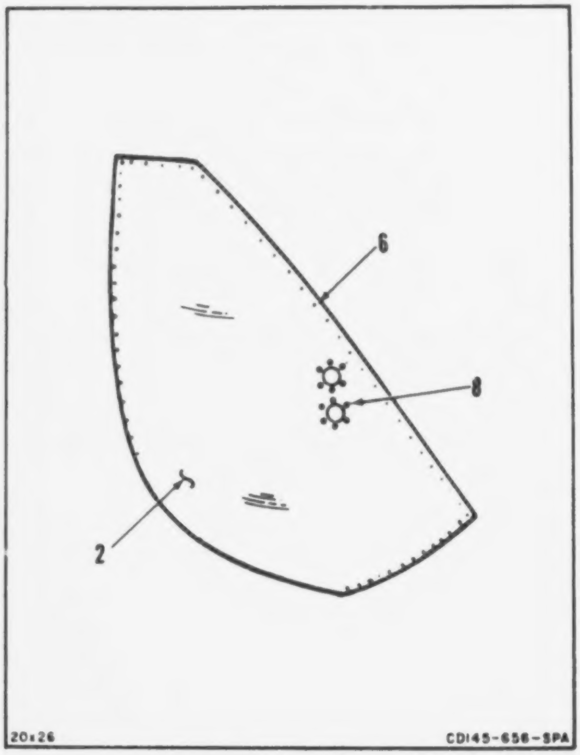
CAUTION

Support areas being drilled. Use wooden backing block behind area being drilled to prevent window panel from cracking.

13. **Drill 76 screw holes (6)** at locations marked on edge of panel (2). Use 60 degree 15/32-inch drill. **Countersink 76 holes** with 100 degree countersink.
14. **Drill 12 screw holes (8)** at locations marked around sideslip port mounting holes. Use 60 degree 7/32-inch drill.
15. **Countersink 12 screw holes (8)** around sideslip port mounting hole. Use 100 degree countersink.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-60 INSTALL COCKPIT NOSE BUBBLE WINDOW PANEL 2-60

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand
Torque Wrench 1/4 Inch Drive 0 to 25 Inch-Pounds
1/4 Inch Socket
1/4 Inch Drive Apex Holder
Phillips Head Apex

Materials:

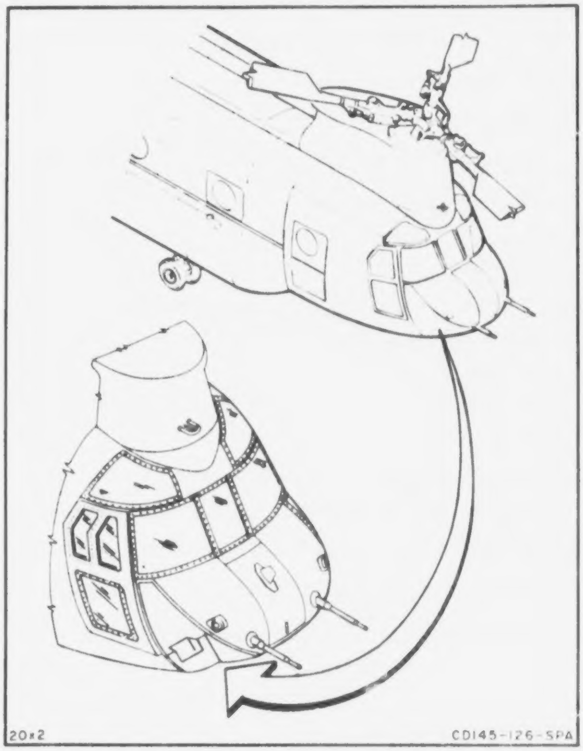
Sealant (E336)
Gloves (E186)
Sealant Tape (E348.1)

Personnel Required:

Medium Helicopter Repairer
Inspector

References:

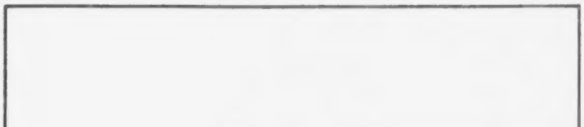
TM 55-1520-240-23P
Task 2-59



NOTE

- Procedures are same for installing left or right bubble window panel. Right side is shown here.
- If new bubble window panel is being installed, do steps 1. thru 10. If same bubble is being used, do steps 4. thru 10.

1. Prepare new panel for installation (Task 2-59).
2. **Install each adapter (1) on retainer (2)** in port mounting holes. Make sure TOP mark is up.
3. **Install six adapter screws (3). Torque screws to 6 inch-pounds .**



GO TO NEXT PAGE

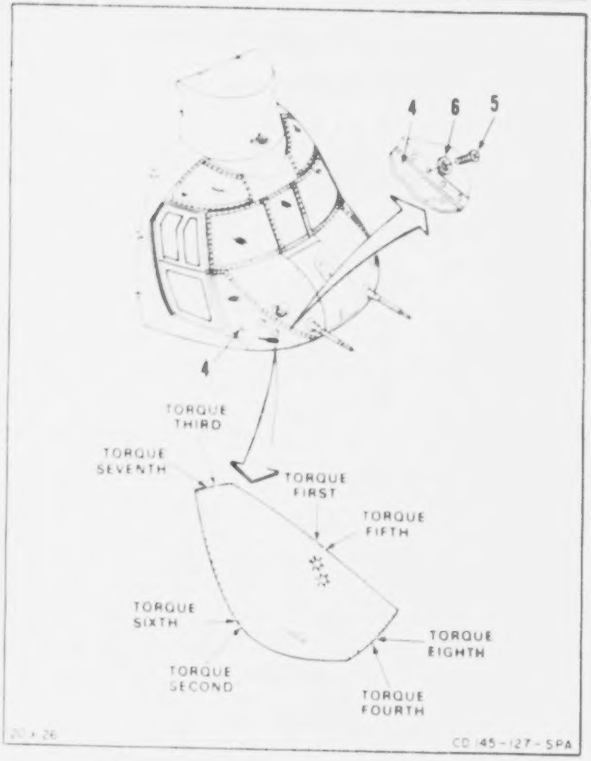
2-60 INSTALL COCKPIT NOSE BUBBLE WINDOW PANEL (Continued) 2-60

4. Check sealant tape on cockpit structure for tears or cuts. If damaged, replace tape (E348.1). **Position nose bubble window panel (4)** against sealant tape on cockpit structure.
5. Make sure holes in panel (4) align with holes in cockpit structure.
6. **Install 76 screws (5)** and washers (6).

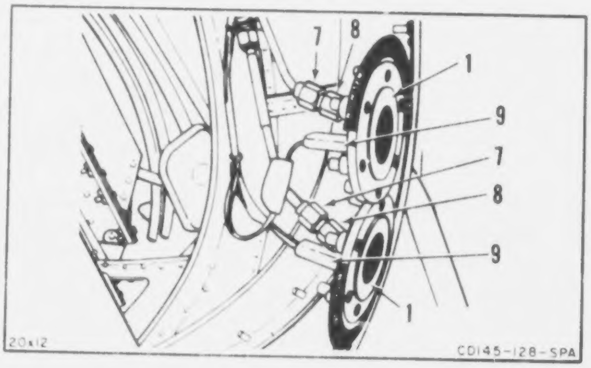
WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes and clothing. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes . Get medical attention for eyes.

7. **Apply sealant (E336)** between each screw (5) and washer (6) and between each washer (6) and panel (4). Wear gloves (E186).
8. **Torque screws (5) to 12 inch-pounds.** Torque screws alternately following torque sequence shown.
9. Apply sealant (E336) around edge of window panel (4). Make sealant flush with structure. Wear Gloves (E186).


4
6
5
4
TORQUE THIRD
TORQUE SEVENTH
TORQUE FIRST
TORQUE FIFTH
TORQUE SIXTH
TORQUE EIGHTH
TORQUE SECOND
TORQUE FOURTH
20 x 26
CD 145-127-SPA

10. **Connect tubes (7)** to fittings (8) and adapters (1). Make sure tubes are clear.
11. **Connect electrical connectors (9)** to adapters (1).


7
8
1
9
7
8
9
1
20x12
CD145-128-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

Purge sideslip line.

Check port heat operation (TM 55-1520-240-T).

Check panel for leaks (Task 2-61).

END OF TASK

2-61 CHECK WINDSHIELD, COCKPIT, AND CABIN WINDOWS FOR LEAKS 2-61

INITIAL SETUP

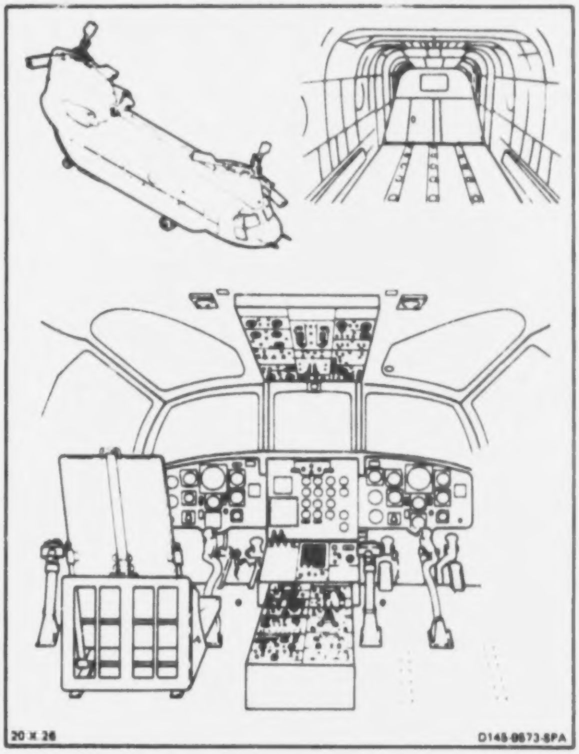
Applicable Configurations:
All

Tools:
Water Hose
Workstand

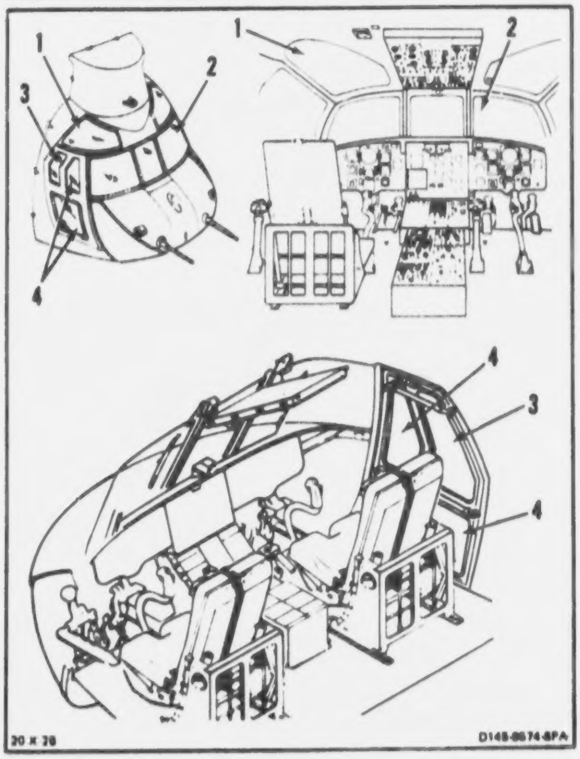
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Hatches, Windows, and Doors Closed and Secured



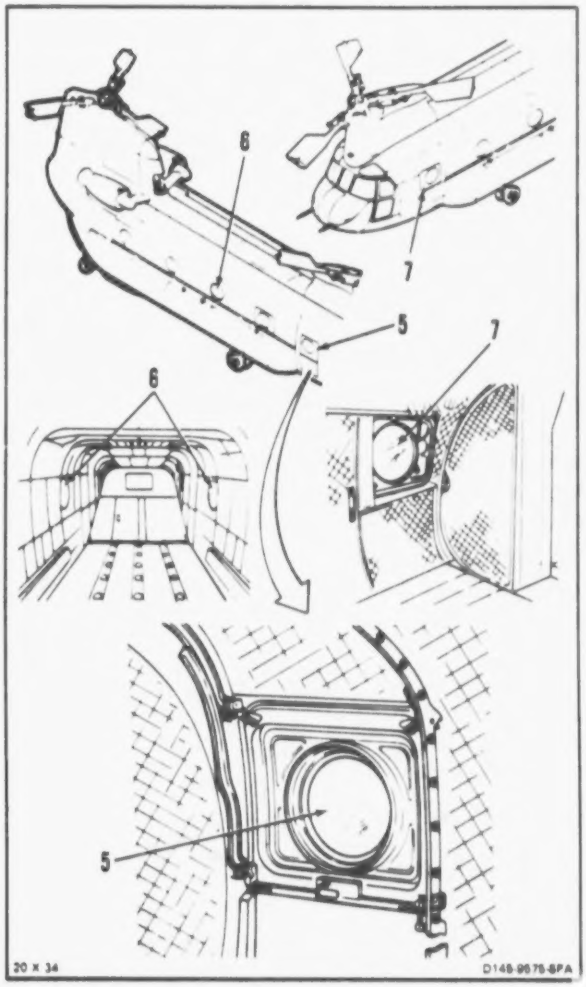
1. Have helper spray water downward on crown windows (1), windshield (2), sliding window (3), and fixed windows (4) for five minutes.
2. From inside cockpit, **check crown windows (1), windshield (2), sliding window (3), and fixed windows (4) for leaks. There shall be no leaks in cockpit area.**



GO TO NEXT PAGE

2-61 CHECK WINDSHIELD, COCKPIT, AND CABIN WINDOWS FOR LEAKS (Continued) 2-61

3. Have helper spray water downward on cabin door escape hatch (5), cabin windows (6), and forward cabin escape hatch (7) for five minutes.
4. **From inside cabin, check escape hatch (5), windows (6), and forward cabin escape hatch (7). There shall be no leaks.**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-62 REMOVE FORWARD TRANSMISSION FORWARD FAIRING 2-62

INITIAL SETUP

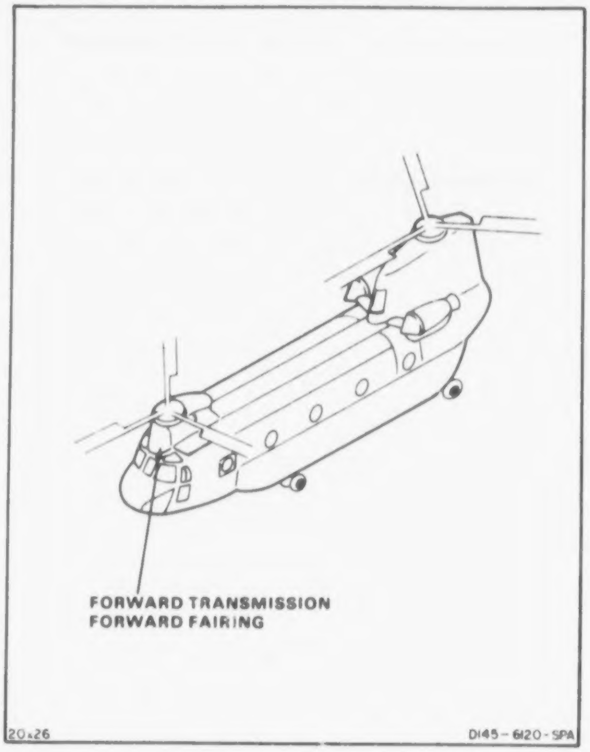
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstands (2)

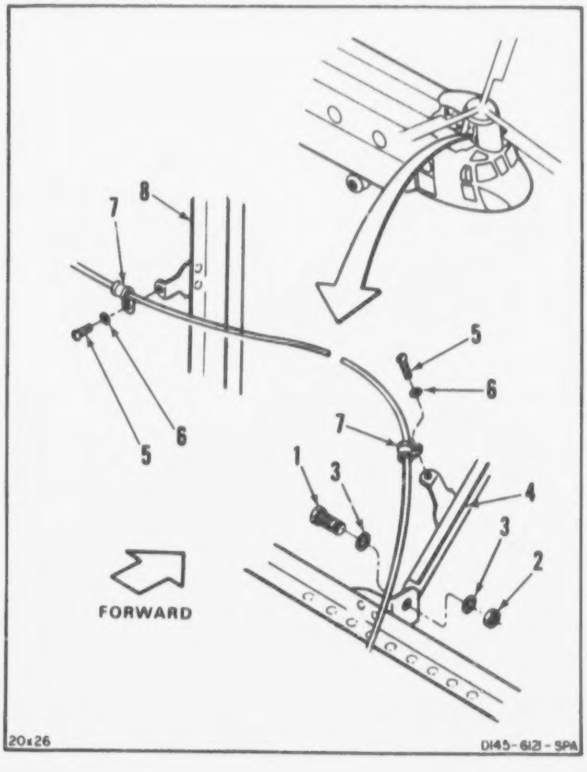
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (4)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Forward Work Platforms Opened (Task 2-2)


FORWARD TRANSMISSION
FORWARD FAIRING
20x26
D145-6120-SPA

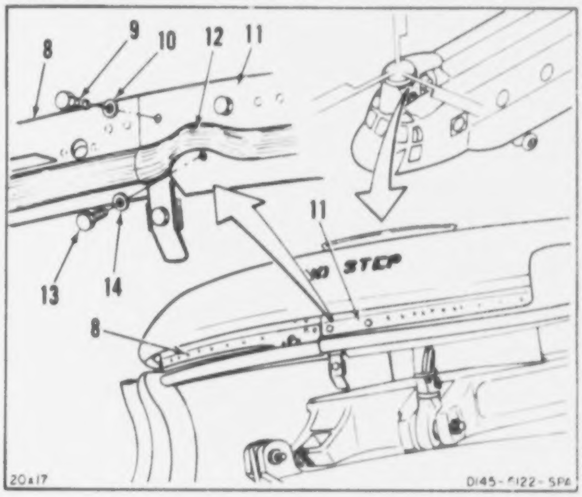
1. **Remove two bolts (1),** nuts (2), and four washers (3) from braces (4).
2. **Remove two** screws (5), washers (6), and **clamps (7)** from brace (4) and forward fairing (8).


8
7
5
6
5
6
7
1
3
4
3
2
FORWARD
20x26
D145-6121-SPA

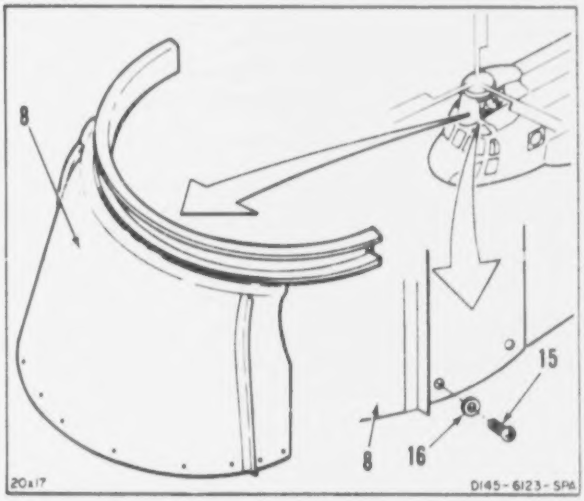
GO TO NEXT PAGE

2-62 REMOVE FORWARD TRANSMISSION FORWARD FAIRING (Continued) 2-62

3. **Remove eight bolts (9)** and washers (10) from forward and aft fairings (8 and 11).
4. **Roll up edge of seal (12) and remove four bolts (13)** and washers (14) from forward and aft fairings (8 and 11).

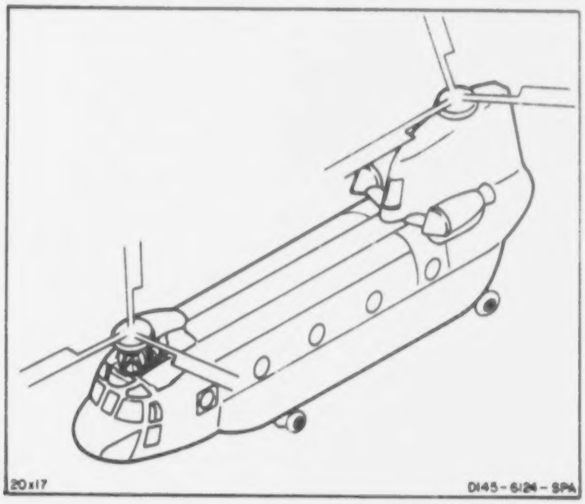

8
9
10
12
11
11
O STEP
13
14
8
20x17
D145-6122-SPA

5. **Remove 11 screws (15)** and washers (16) from base of fairing (8).
6. With aid of helper, **remove fairing (8).**


8
15
8
16
20x17
D145-6123-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
D145-6124-SPA

END OF TASK

2-63 REMOVE FORWARD TRANSMISSION AFT FAIRING 2-63

INITIAL SETUP

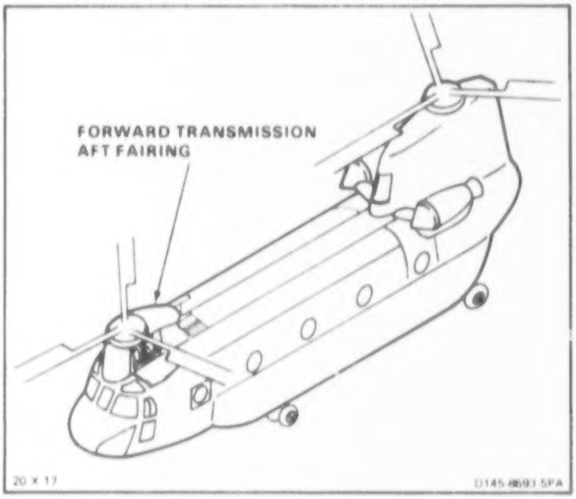
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

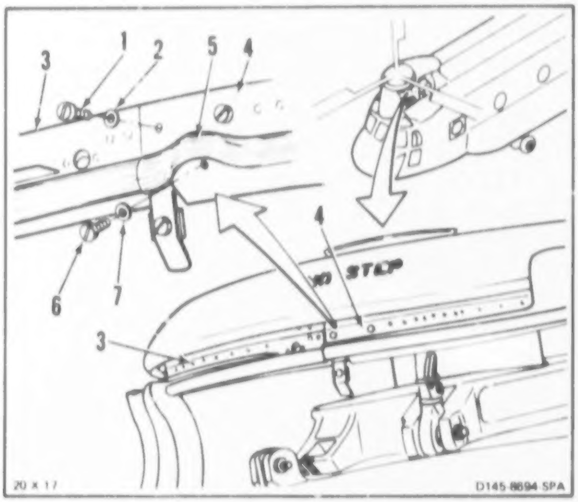
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Forward Work Platforms Opened (Task 2-2)
Forward Tunnel Cover Opened (Task 2-2)


FORWARD TRANSMISSION AFT FAIRING
20 x 17
D145 8693 SPA

1. With aid of helper **Remove two screws (1)** and washers (2) from each side of forward and aft fairings (3 and 4).
2. With aid of helper roll up edge of seal (5) and **remove two screws (6)** and washers (7) from each side of forward and aft fairings (3 and 4).

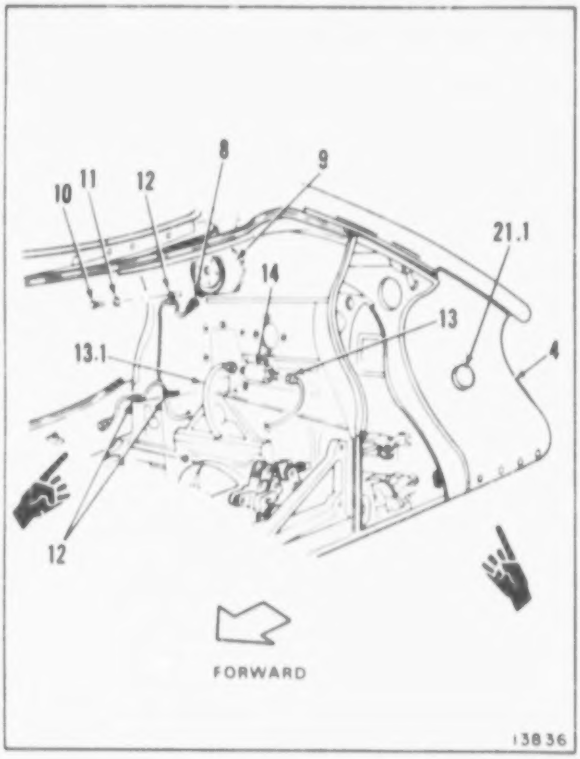

3
1
2
5
4
6
7
STEP
4
3
20 x 17
D145 8694 SPA

GO TO NEXT PAGE

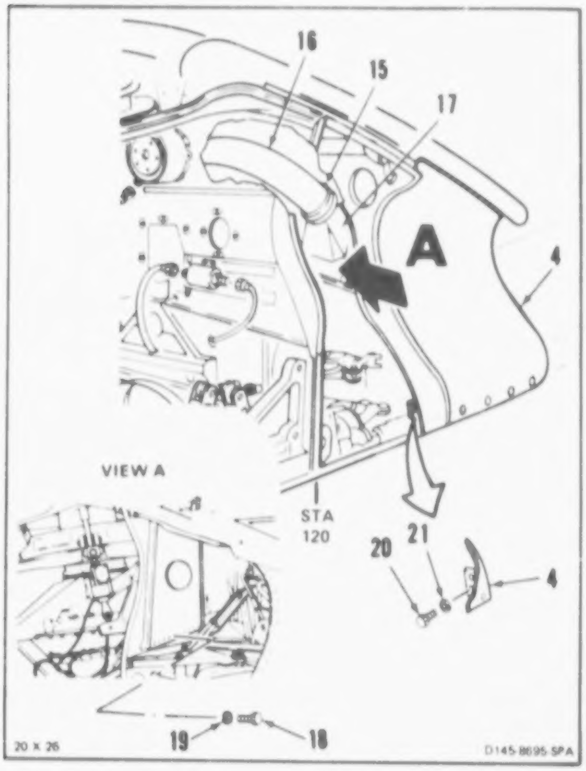
2-63 REMOVE FORWARD TRANSMISSION AFT FAIRING (Continued) 2-63

3. Disconnect electrical connector (8) from reservoir/cooler blower motor (9).
4. Remove three screws (10), washers (11), and clamps (12) from fairing (4).
5. Disconnect electrical connector (13) and oil pressure line (13.1) from forward transmission transducer (14).

5.1. With **17** only, disconnect two electrical connections from two NVG lights (21.1), one on each side of fairing (Task 9-85.1).


10
11
12
8
9
21.1
14
13
13.1
4
12
FORWARD
13836

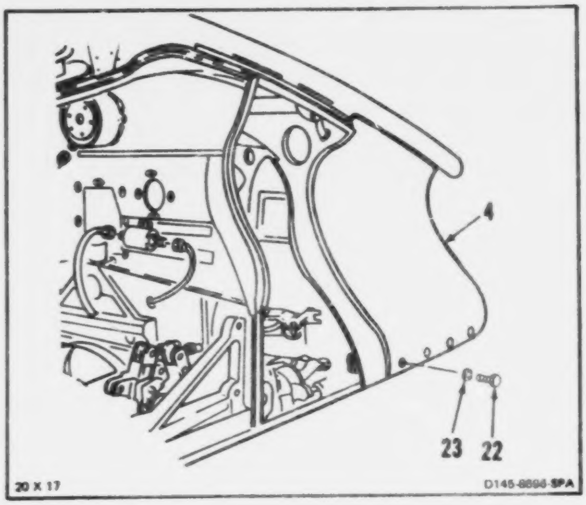
6. Loosen clamp (15) and remove duct (16) from reservoir/cooler (17).
7. Remove ten bolts (18) and washers (19) securing aft fairing (4) at station 120.
8. Remove two screws (20) and washers (21) from each side of fairing (4) at station 140.


16
15
17
A
4
VIEW A
STA 120
20
21
4
19
18
20 x 26
D145-8695-SPA

GO TO NEXT PAGE

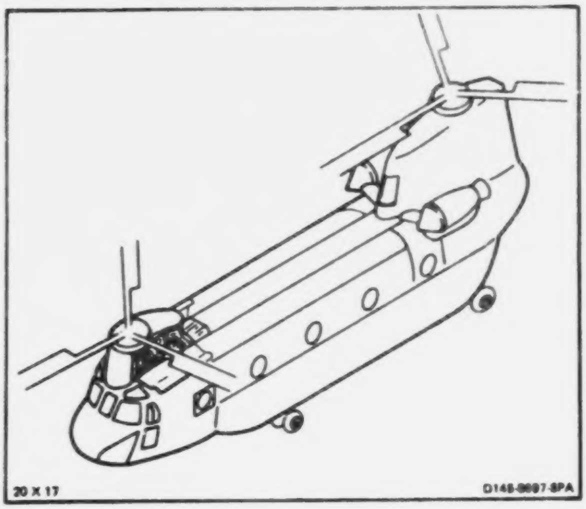
2-63 REMOVE FORWARD TRANSMISSION AFT FAIRING (Continued) 2-63

9. Remove four screws (22) and washers (23) from base on each side of fairing (4).
10. With aid of helper, remove aft fairing (4).


4
23
22
20 X 17
D145-8896-SPA

FOLLOW-ON MAINTENANCE:

None


20 X 17
D145-8897-SPA

END OF TASK

2-64 REPAIR FORWARD TRANSMISSION FAIRING 2-64

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Inspector

References:
Task 2-65
TM 55-1500-204-25/1
Task 2-66

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Inspect the forward transmission fairing and hinged fairings.
2. Damage classification to the forward transmission fairing is minor (Task 2-65), and extensive damage (Task 2-66).

GO TO NEXT PAGE

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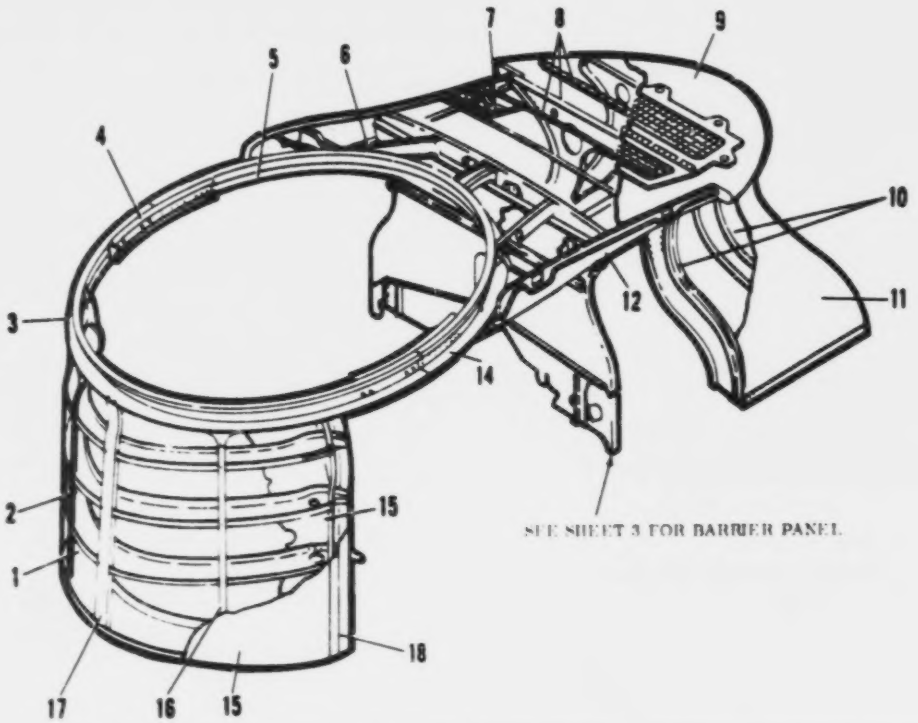
2-64 REPAIR FORWARD TRANSMISSION FAIRING (Continued) 2-64

STRUCTURE AND FIXED FAIRINGS



SEE SHEET 3 FOR BARRIER PANEL

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.025 6061-T6 BARE	0.032 6061-T6 CLAD
2	FORMER	0.020 6061-T6 BARE	0.025 6061-T6 BARE
3	ANGLE	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
4	SPLICE	0.080 7075-T6 BARE	0.090 7075-T6 CLAD
5	TEE	ALCOA 22981 7075-T6	0.025 1130
6	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
7	FORMER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
8	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
9	SKIN	2-PLY GLASS CLOTH	NOTE B.
10	FORMER	0.025 6061-T6 BARE	0.032 6061-T6 BARE
11	SKIN	3-PLY GLASS CLOTH	NOTE B.
12	CHANNEL	0.032 2024-T4 CLAD	0.032 2024-T3 CLAD
13	DELETED		
14	CHANNEL	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
15	SKIN	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
16	FORMER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
17	STIFFENER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
18	SPOILER	ALUMINUM OR GLASS	0.050 2024-T3 CLAD

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. THE SKIN IS LAMINATED POLYESTER IMPREGNATED NO. 181 GLASS CLOTH, MIL-P-8013, TYPE 1, REINFORCED WITH 60 END, 830 GLASS ROVING, IMPREGNATED WITH RESIN IN ACCORDANCE WITH MIL-R-7575

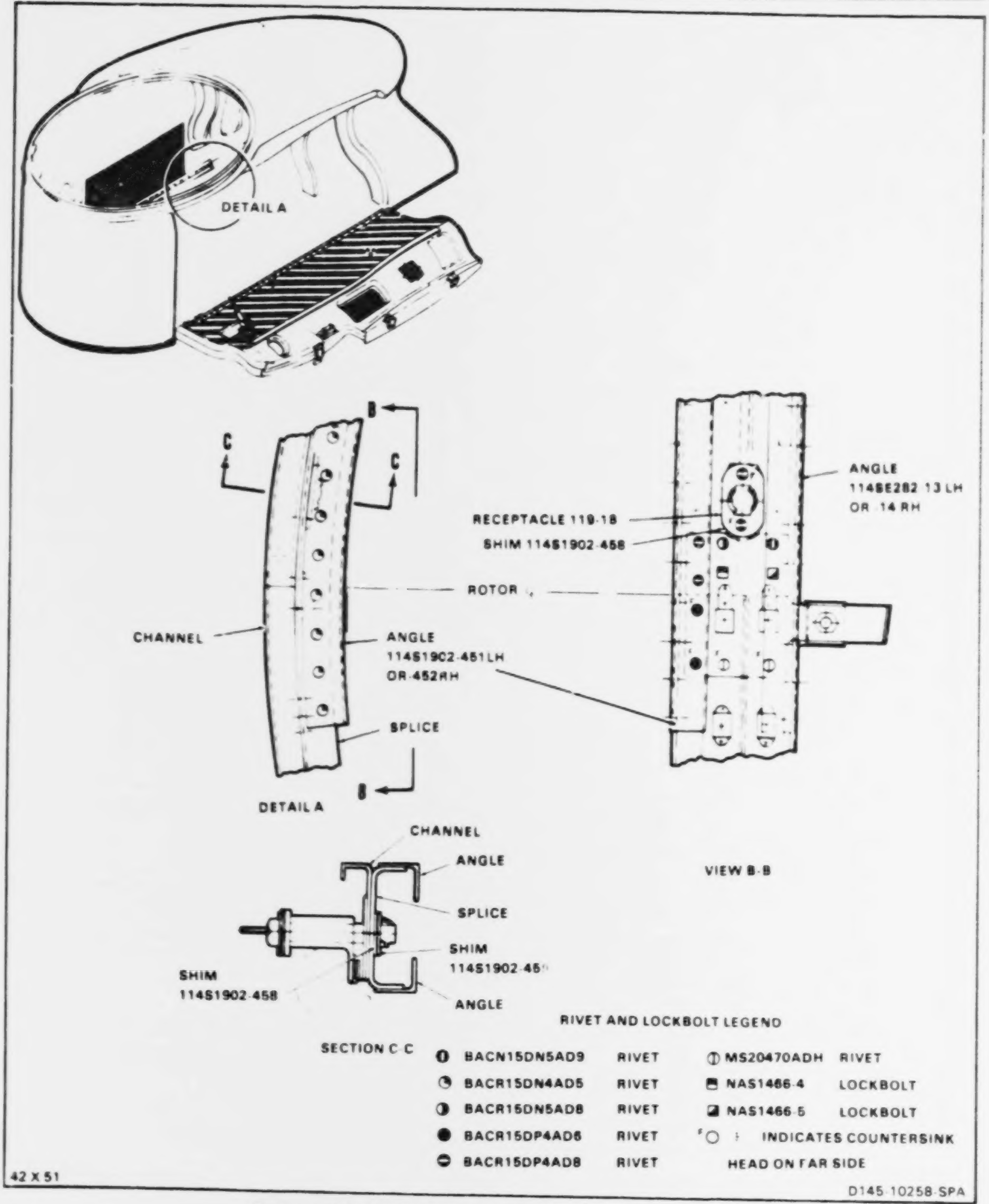
42 X 51

D145-10257-5PA

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 1 of 6)

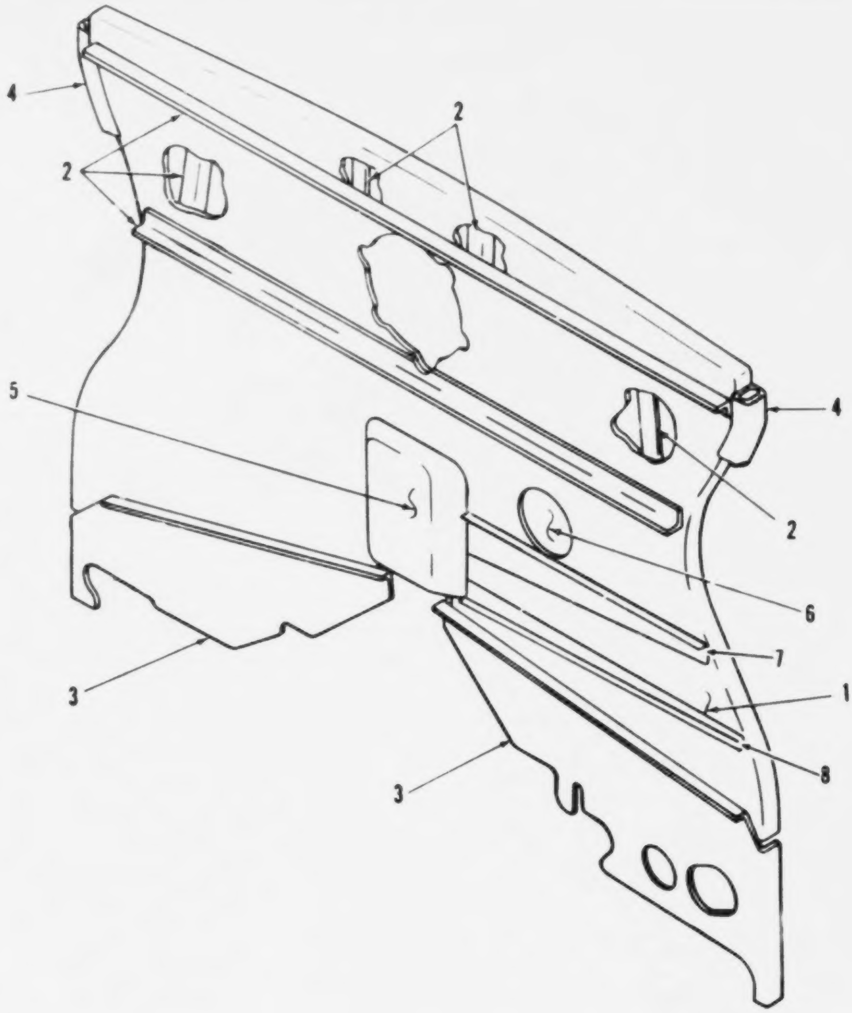
GO TO NEXT PAGE

2-64 REPAIR FORWARD TRANSMISSION FAIRING (Continued) 2-64


DETAIL A
B
C
C
CHANNEL
ROTOR
ANGLE
114S1902-451LH
OR -452RH
SPLICE
B
DETAIL A
RECEPTACLE 119-18
SHIM 114S1902-458
ANGLE
114SE282-13 LH
OR -14 RH
VIEW B-B
CHANNEL
ANGLE
SPLICE
SHIM
114S1902-45
SHIM
114S1902-458
ANGLE
SECTION C-C
RIVET AND LOCKBOLT LEGEND
BACN15DN5AD9 RIVET
BACR15DN4AD5 RIVET
BACR15DN5AD8 RIVET
BACR15DP4AD6 RIVET
BACR15DP4AD8 RIVET
MS20470ADH RIVET
NAS1466-4 LOCKBOLT
NAS1466-5 LOCKBOLT
INDICATES COUNTERSINK HEAD ON FAR SIDE
42 X 51
D145-10258-SPA

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 2 of 6)

GO TO NEXT PAGE



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	WEB	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
2	STIFFENER	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
3	WEB	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
4	SEAL	VS80872-2	NOTE B
5	COVER	0.080 & 9049.5 KYDEX	
6	COVER	0.032 2024-T3 CLAD	
7	ANGLE	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD
8	ANGLE	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. REPLACE WITH SAME MATERIAL AS ORIGINAL

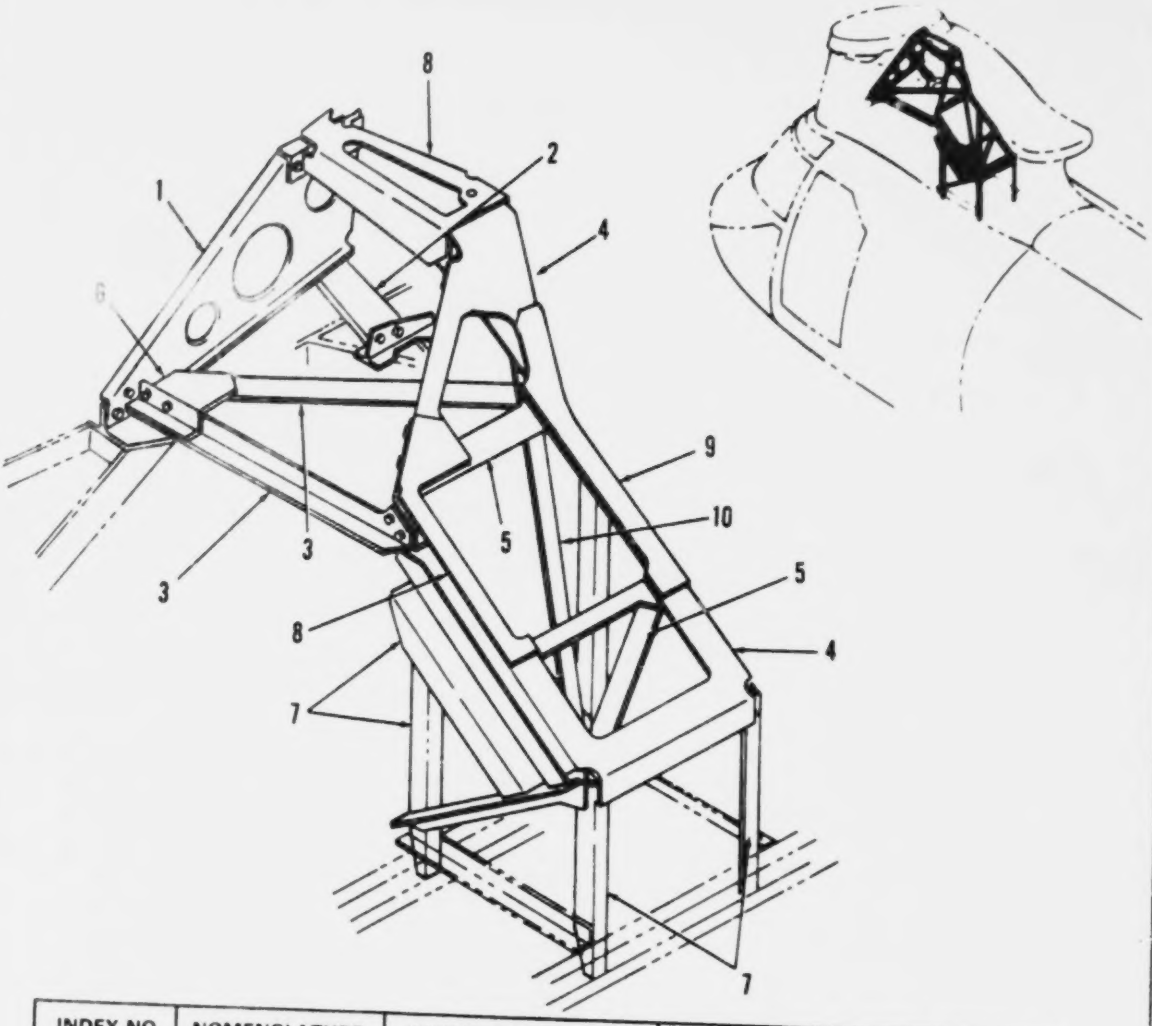
42 X 51

D145-10259-SPA

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 3 of 6)

GO TO NEXT PAGE

2-64 REPAIR FORWARD TRANSMISSION FAIRING (Continued) 2-64



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATEIAL	REPAIR FIG.
1	BRACE	0.063 2024-T3 CLAD	0.080 2023-T3 CLAD	NOTE B.
2	STRUT	0.071 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
3	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
4	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
5	ANGLE	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
6	BRACKET	0.063 301 CRES	0.080 301 CRES	NOTE B.
7	SUPPORT	0.063 2024-T3 CLAD	0.080 2024-T3 CLAD	NOTE B.
8	SUPPORT	0.063 301 1/4 HD CRES	0.063 301 1/4 HD CRES	NOTE B.
9	SUPPORT	0.063 CRES 17-7 PH HT TR 180-200 KSI	0.071 CRES 17-7 PH HT TR 180-200 KSI	NOTE B.
10	STRUT	AND10133-0701 7075-T6511	0.063	NOTE B.

NOTES

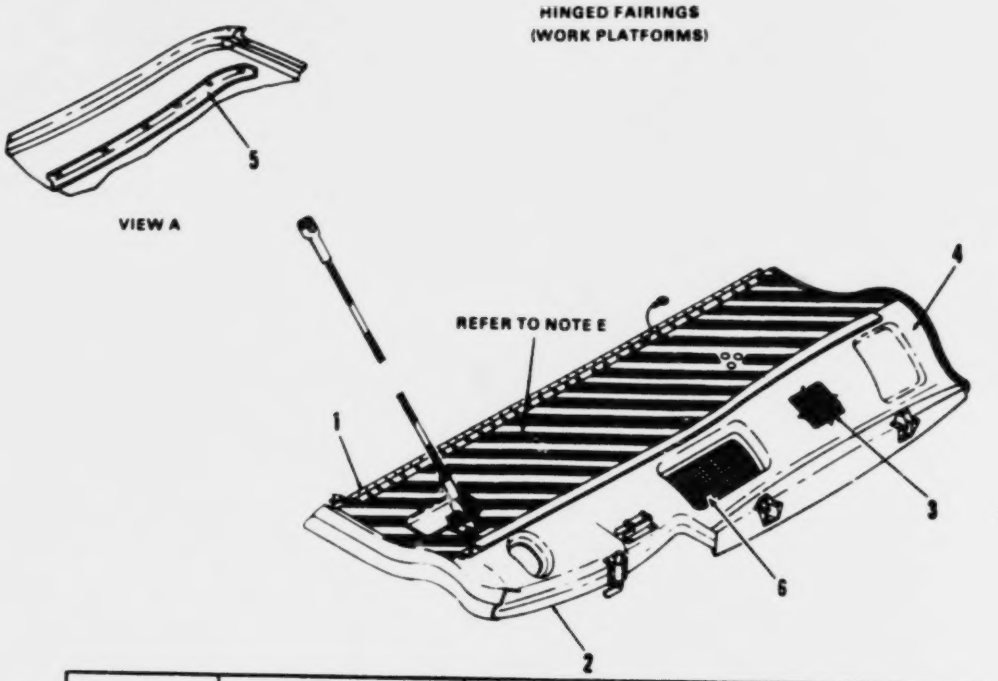
A. ALL DIMENSIONS ARE IN INCHES.
B. REFER TO TM 55-1500-204-25/1 FOR FORMED PARTS REPAIR

8508

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 4 of 6)

GO TO NEXT PAGE

2-64 REPAIR FORWARD TRANSMISSION FAIRING (Continued) 2-64



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL L	REPAIR MATERIAL
1	HINGE	MS20001PH6	NOTE C.
2	SKIN	PREIMPREGNATED GLASS FABRIC	NOTE D.
3	CORE	0.710, 5.4-3/16-20N-5052	NOTE B.
4	SKIN	PREIMPREGNATED GLASS FABRIC	NOTE D.
5	SPOILER ANGLE	2024-T3 CLAD	NOTE F.
6	SCREEN	0.041 DIAMETER CLOTH 0.050 X0.050 MESH 316 STAINLESS STEEL	NOTE G.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. THE PLATFORM AREA IS OF SANDWICH HONEYCOMB CONSTRUCTION¼ REFER TO TM 55-1500-204-25/1

C. MACHINE TO CONFIGURATION OF ORIGINAL DAMAGED SECTION

D. LAMINATED: CONSISTING OF ONE CONTINUOUS LAYER OF BP407-120A NEXT TO THE CORE, TWO PLIES OF BP407-181A And two plies of BP-407 120A IN THE LOWER AREA; THREE PLIES OF BP407-120A IN THE UPPER AREA; AND ONE CONTINUOUS PLY OF BP407-120A ON THE OUTSIDE OF THE LAYUP

E. APPLY WALKWAY MATERIAL (E440), AS DIRECTED IN TASK 2-356 FOLLOWING REPAIRS TO THIS AREA OR AS REQUIRED BY WEAR

F. REPLACE WITH NEW SPOILER ANGLE 1148196T-3 LH OR -4 RH

G. REPLACE WITH MATERIAL SIMILAR TO ORIGINAL

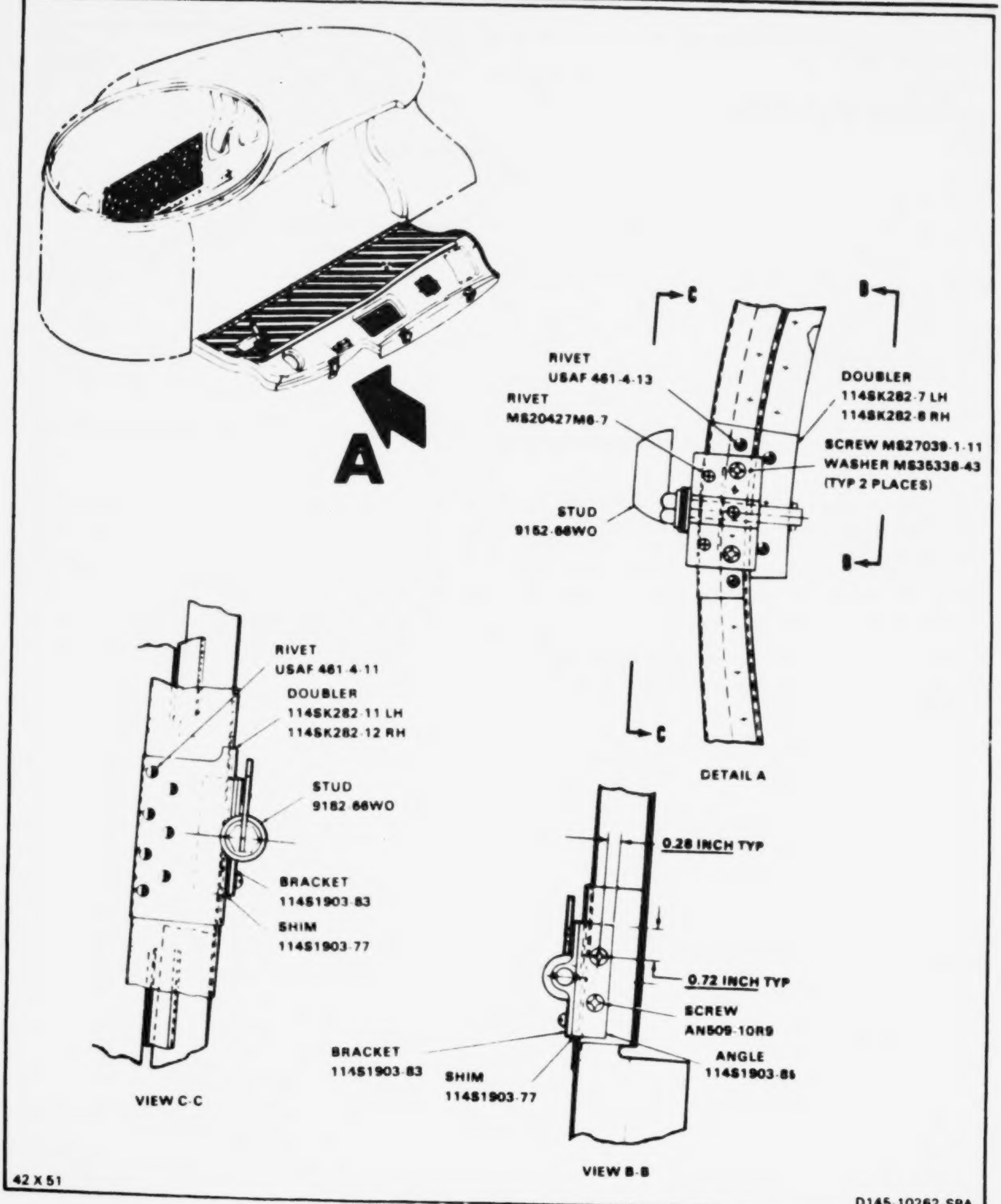
42 X 51

D145-10261-SPA

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 5 of 6)

GO TO NEXT PAGE

2-64 REPAIR FORWARD TRANSMISSION FAIRING (Continued) 2-64


A
C
B
RIVET
USAF 461-4-13
RIVET
MS20427M6-7
DOUBLER
114SK282-7 LH
114SK282-8 RH
SCREW MS27039-1-11
WASHER MS35338-43
(TYP 2 PLACES)
STUD
9152-66WO
B
C
DETAIL A
RIVET
USAF 461-4-11
DOUBLER
114SK282-11 LH
114SK282-12 RH
STUD
9182-66WO
BRACKET
114S1903-83
SHIM
114S1903-77
VIEW C-C
0.28 INCH TYP
0.72 INCH TYP
SCREW
AN509-10R9
BRACKET
114S1903-83
SHIM
114S1903-77
ANGLE
114S1903-86
VIEW B-B
42 X 51
D145-10262-SPA

Forward Pylon Structure and Fairing Repairs — Cockpit Fuselage Structure (Sheet 6 of 6)

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-65 MINOR REPAIR — FORWARD TRANSMISSION FAIRING 2-65

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-64
Task 2-6

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Minor damage consists of nicks, dents, and scratches that can be removed by burnishing (Task 2-6).
2. Patch cracks and small round or oval holes not exceeding limits (Task 2-64).
3. Patch repair damage affecting less than 25 percent of the area of a skin panel (Task 2-64).
4. Patch repair damage to formed parts not affecting the radius (Task 2-64).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-66 DAMAGE TO FORWARD TRANSMISSION FAIRING NECESSITATING REPLACEMENT (AVIM) 2-66

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-64
Task 2-13

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair damage affecting more than 25 percent of area of skin panel or which affects boundary members by insertion (Task 2-64, Task 2-13).
2. Repair damage to formed parts affecting the radius by insertion (Task 2-13, Task 2-64).
3. If damage is extensive, as loss of a major portion of a member or numerous isolated damages, replace in whole or in part (Task 2-64).
4. Replace cracked or badly damaged latch plates (Task 2-13).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-67 INSTALL FORWARD TRANSMISSION FORWARD FAIRING 2-67

INITIAL SETUP

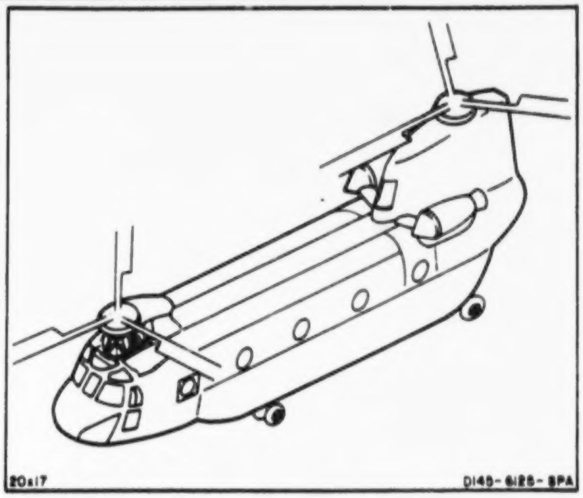
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstands (2)

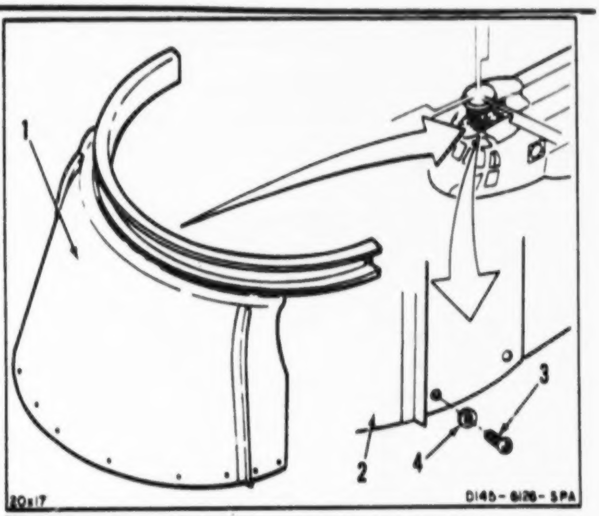
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (4)

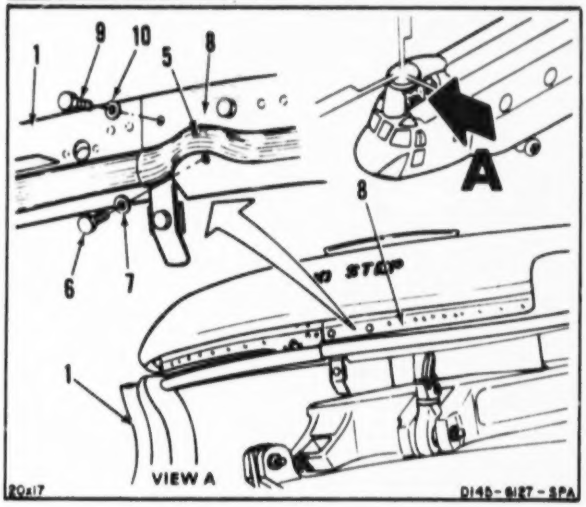
References:
TM 55-1520-240-23P


20x17
D145-6125-SPA

1. With aid of helper, **position forward fairing (1) on structure (2).**
2. **Install 11 screws (3)** and washers (4) in base of fairing (1).


1
3
2
4
20x17
D145-6126-SPA

3. **Roll up edge of seal (5) and install four bolts (6)** and washers (7) through forward and aft fairings (1 and 8).
4. **Install eight bolts (9)** and washers (10) through forward and aft fairings (1 and 8).


1
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8
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8
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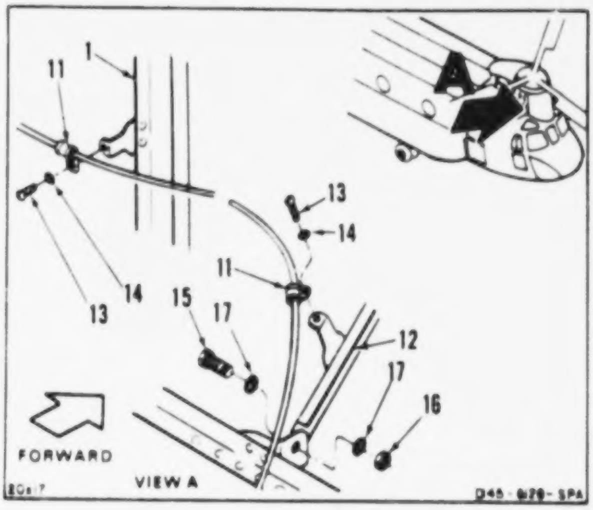
7
STEP
1
VIEW A
20x17
D145-6127-SPA

GO TO NEXT PAGE

2-67 INSTALL FORWARD TRANSMISSION FORWARD FAIRING (Continued) 2-67

5. **Position two clamps (11)** on forward fairing (1) and brace (12). **Install two screws (13)** and washers (14).
6. **Position two braces (12). Install two bolts (15),** nuts (16), and four washers (17).


1
11
A
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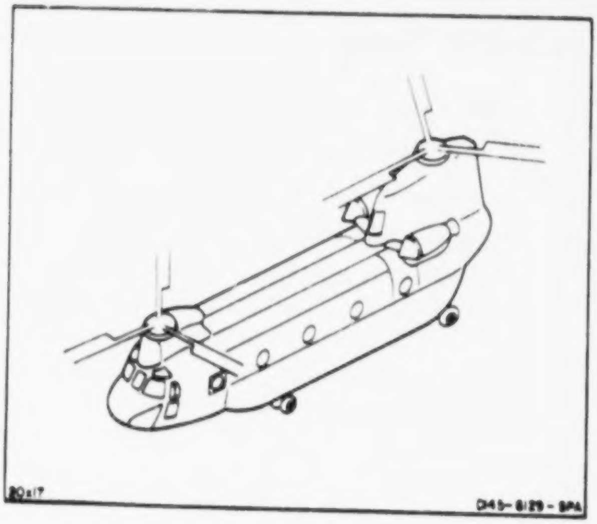
17
16
FORWARD
VIEW A
D45-6129-SPA


D45-6129-SPA

FOLLOW-ON MAINTENANCE:

Close forward work platforms (Task 2-2).

END OF TASK

2-67.1 PREPARE FORWARD TRANSMISSION FORWARD FAIRING FOR INSTALLATION 2-67.1

INITIAL SETUP

Applicable Configurations:
All

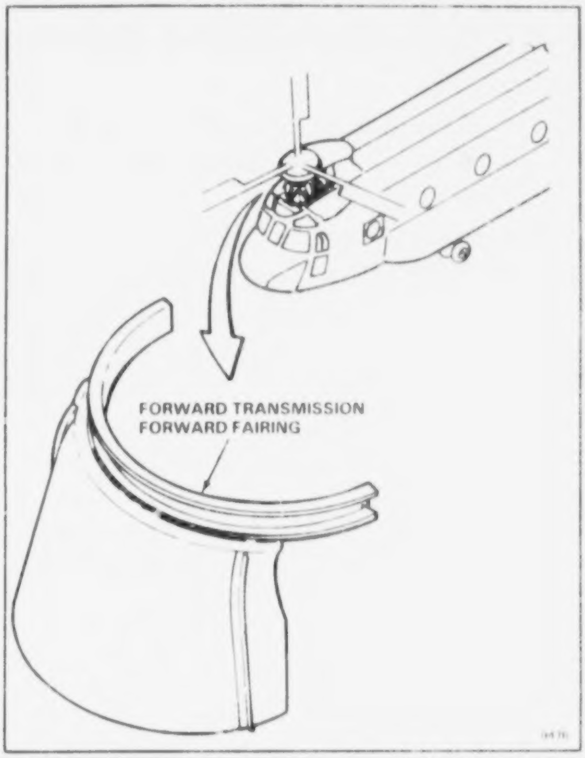
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Drill Size E
Drill Size 3/16

Materials:
Zinc Chromate Primer (E291)
Gloves (E168)

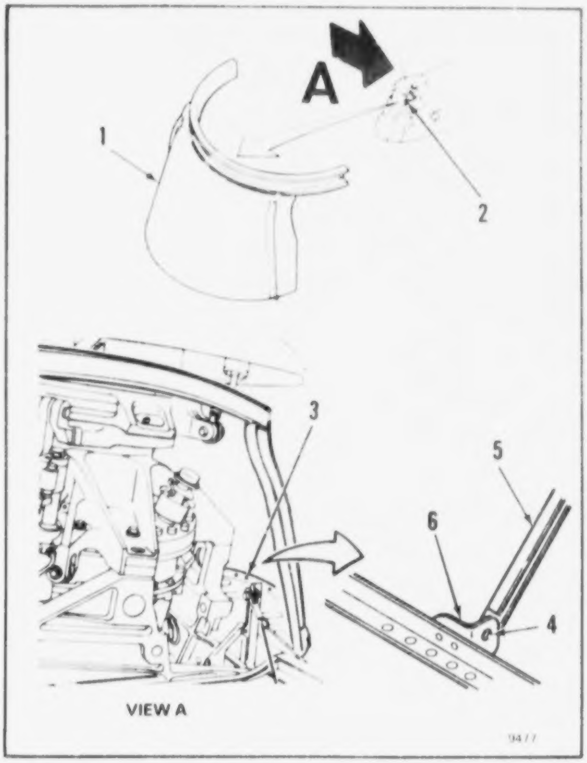
Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P
Task 2-67

Equipment Condition:
Forward Work Platform Opened (Task 2-2)
Forward Transmission Forward Fairing Removed (Task 2-62)



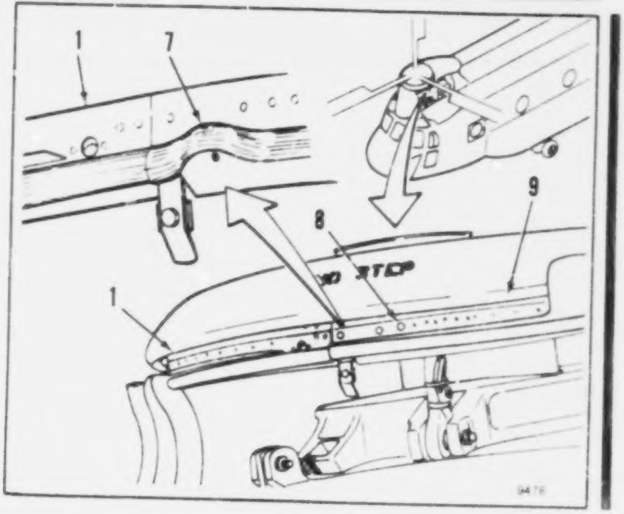
1. **Align fairing (1) with structure (2).**
2. Have helper hold fairing (1) in place. From inside structure (2), **mark 11 holes (3) on fairing (1).** Use holes in structure as guide.
3. **Mark one hole (4) in two braces (5).** Use hole in bracket (6) as guide.



GO TO NEXT PAGE

2-67.1 PREPARE FORWARD TRANSMISSION FORWARD FAIRING FOR INSTALLATION (Continued) 2-67.1

4. Roll back edge of seal (7).
5. **Mark six holes (8) in fairing (1)** (three on each side). Use holes in forward transmission aft fairing (9) as guide.



6. Remove fairing (1) from structure (2).
7. **Drill holes (3) in fairing (1).** Use drill size 3/16. Deburr holes.
8. **Drill holes (4) in two braces (5).** Use drill size 3/16. Deburr holes.
9. **Drill holes (8) in fairing (1).** Use drill size 3/16. Deburr holes.

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flames. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

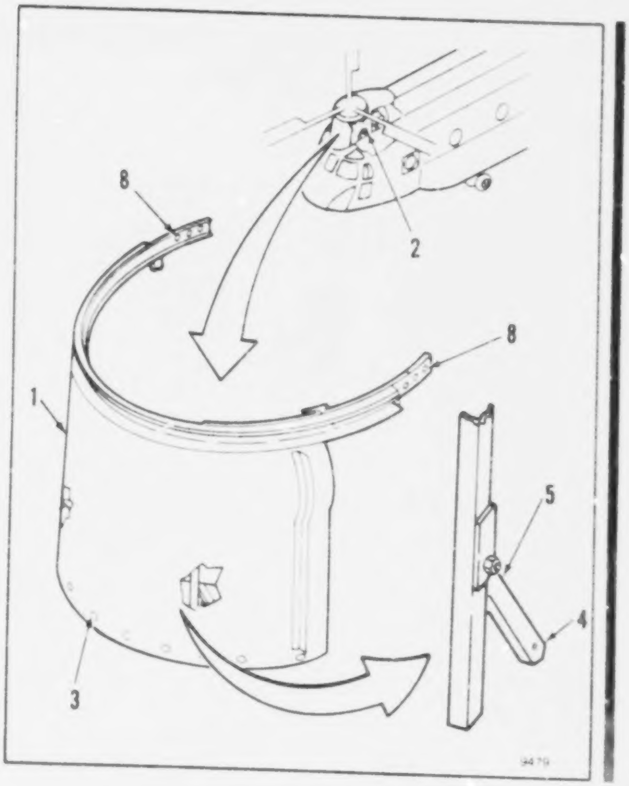
10. **Apply primer (E291) to drilled holes (3, 4, and 8).** Wear gloves (E186).

INSPECT

11. Perform Task 2-67.

FOLLOW-ON MAINTENANCE:

None



GO TO NEXT PAGE

2-68 INSTALL FORWARD TRANSMISSION AFT FAIRING 2-68

INITIAL SETUP

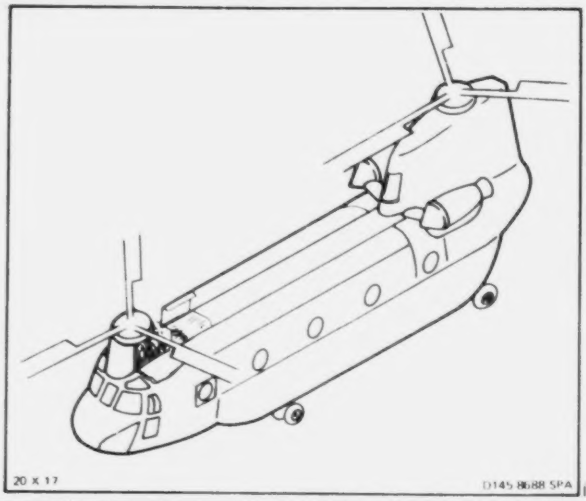
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

References:
TM 55-1520-240-23P



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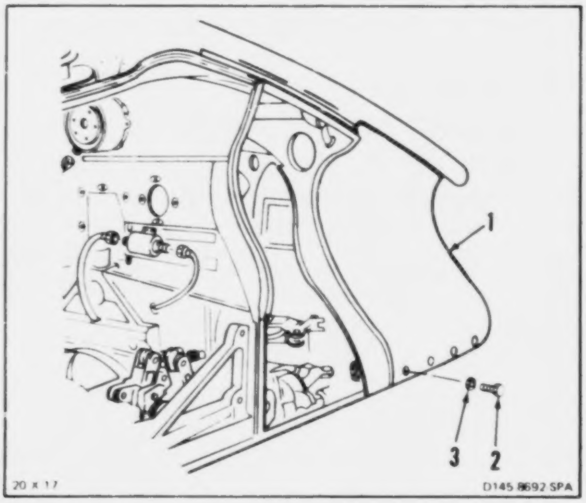
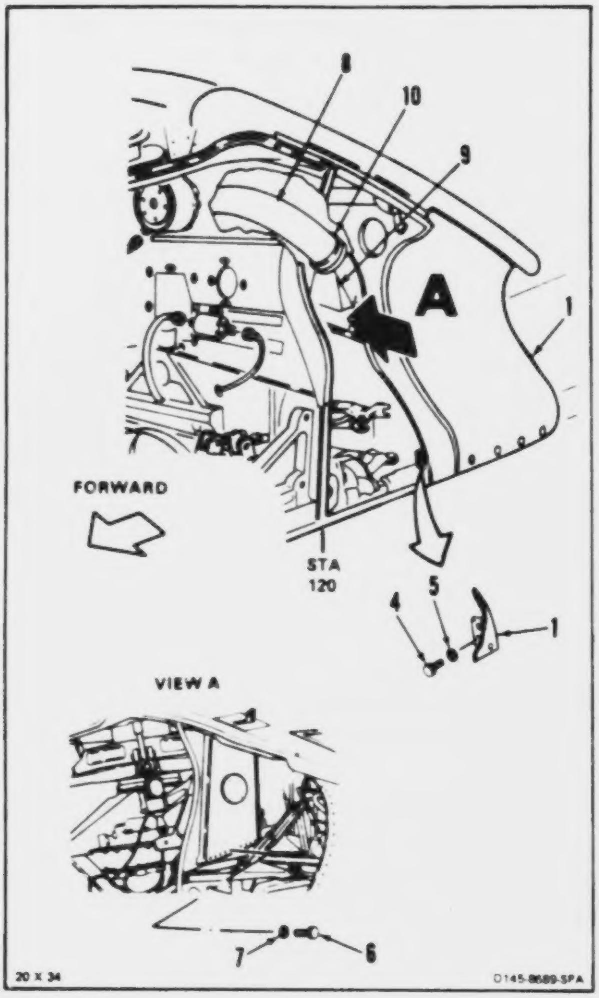
1. With aid of helper, **position forward transmission aft fairing (1)** on helicopter.
2. **Install four screws (2)** and washers (3) in base in each side of fairing (1).



GO TO NEXT PAGE

2-68 INSTALL FORWARD TRANSMISSION AFT FAIRING (Continued) 2-68

3. **Install two screws (4)** and washers (5) in each side of fairing (1) at station 140.
4. **Install ten bolts (6)** and washers (7) in fairing (1) at station 120.
5. Install duct (8) on reservoir/cooler (9). Tighten clamp (10).


8
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FORWARD
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120
4
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VIEW A
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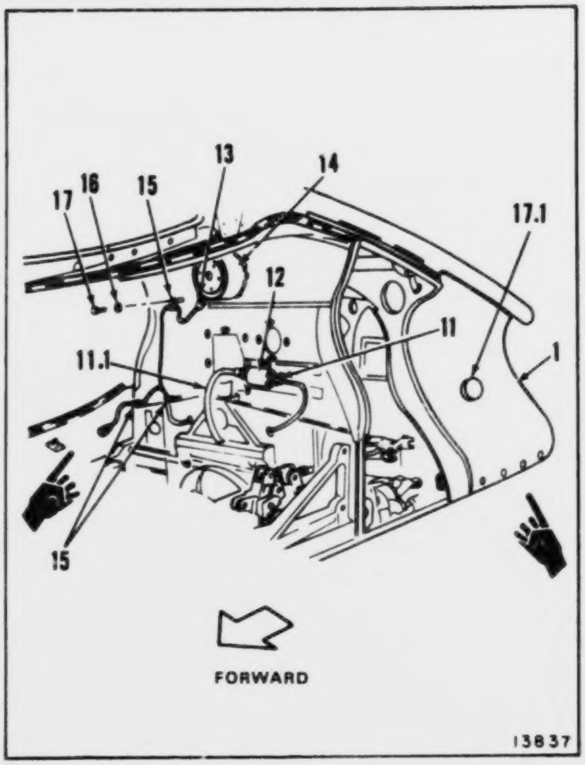
6
20 X 34
D145-8689-SPA

GO TO NEXT PAGE

2-68 INSTALL FORWARD TRANSMISSION AFT FAIRING (Continued) 2-68

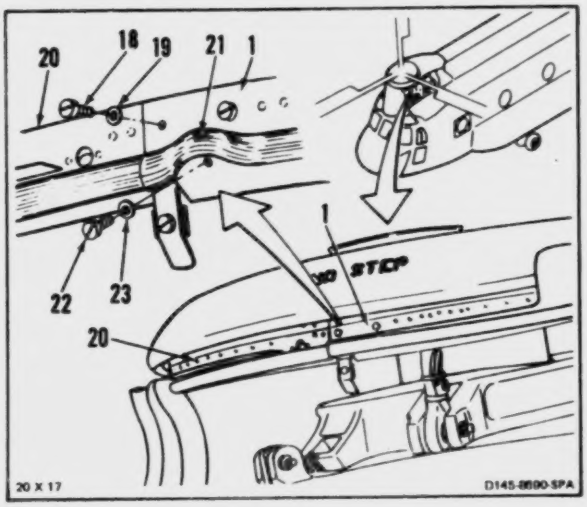
6. Connect electrical connector (11) and oil pressure line (11.1) to forward transmission transducer (12).
7. Connect electrical connector (13) to reservoir/cooler blower motor (14).
8. Install three clamps (15), washers (16), and screws (17) on fairing (1).

8.1. With **17** only, connect two NVG lights (17.1), one on each side of fairing (Task 9-85.2).


13
14
17
16
15
17.1
12
11
11.1
1
15
FORWARD
13837

9. Install two screws (18) and washers (19) in each side of forward and aft fairings (20 and 1).
10. Rollup edge of seal (21) and install two screws (22) and washers (23) in each side of forward and aft fairings (20 and 1).

INSPECT


20
18
19
21
1
22
23
1
20
O STEP
20 X 17
D145-8800-SPA

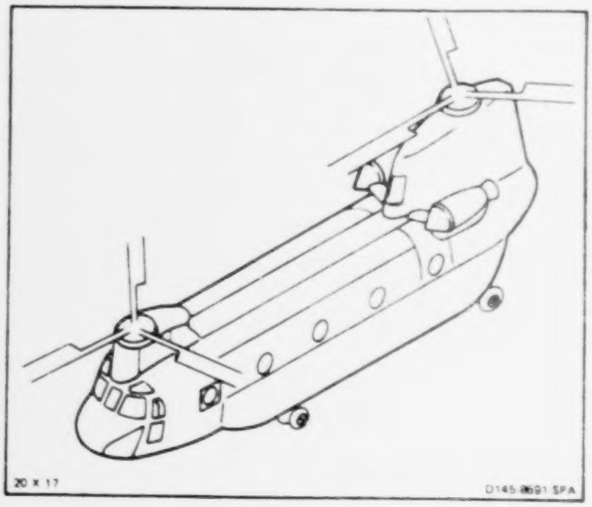
GO TO NEXT PAGE

2-68 INSTALL FORWARD TRANSMISSION AFT FAIRING (Continued) 2-68

FOLLOW-ON MAINTENANCE:

Close forward tunnel cover (Task 2-2).

Close forward fairing work platform (Task 2-2).



END OF TASK

2-68.1 PREPARE FORWARD TRANSMISSION AFT FAIRING FOR INSTALLATION 2-68.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Drill Size E

Drill Size 3/16

Materials:

Zinc Chromate Primer (E291)

Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

Inspector

References:

TM 55-1520-240-23P

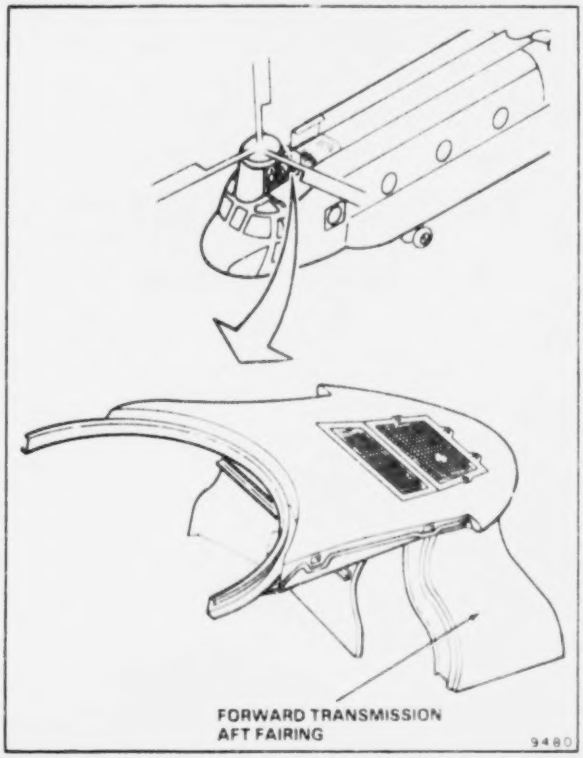
Task 2-67

Equipment Condition:

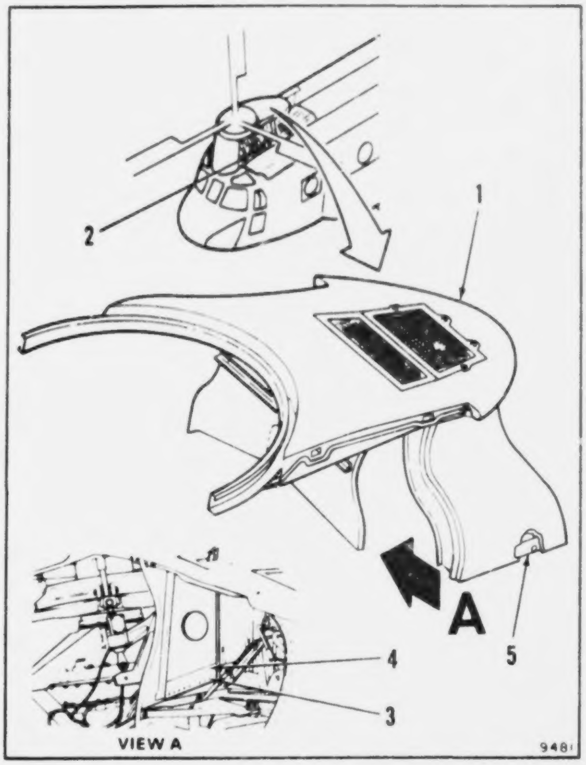
Forward Work Platforms Opened (Task 2-2)

Forward Transmission Aft Fairing Removed (Task 2-63)

Forward Section of Tunnel Cover Opened (Task 2-2)



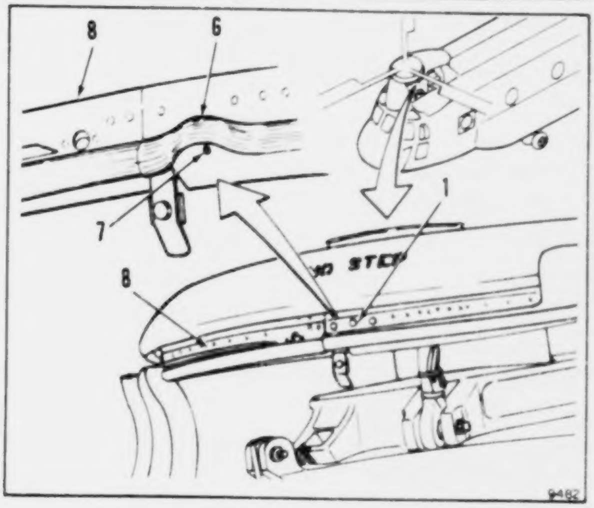
1. Align fairing (1) with structure (2).
2. Have helper hold fairing (1) in place. From inside structure (2), **mark nine holes (3) on fairing (1)**. Use holes in thermal barrier (4) as guide.
3. **Mark eight holes (5) (four on each side) in fairing (1).** Use holes in structure (2) as guide.



GO TO NEXT PAGE

2-68.1 PREPARE FORWARD TRANSMISSION AFT FAIRING FOR INSTALLATION (Continued) 2-68.1

4. Roll back edge of seal (6).
5. **Mark six holes (7) in fairing (1)** (three on each side). Use holes in forward transmission forward fairing (8) as guide.



6. Remove fairing (1).
7. **Drill holes (3) in fairing (1).** Use drill size E. Deburr holes.
8. **Drill holes (5) in fairing (1).** Use drill size 3/16. Deburr holes.
9. **Drill holes (7) in fairing (1).** Use drill size 3/16. Deburr holes.

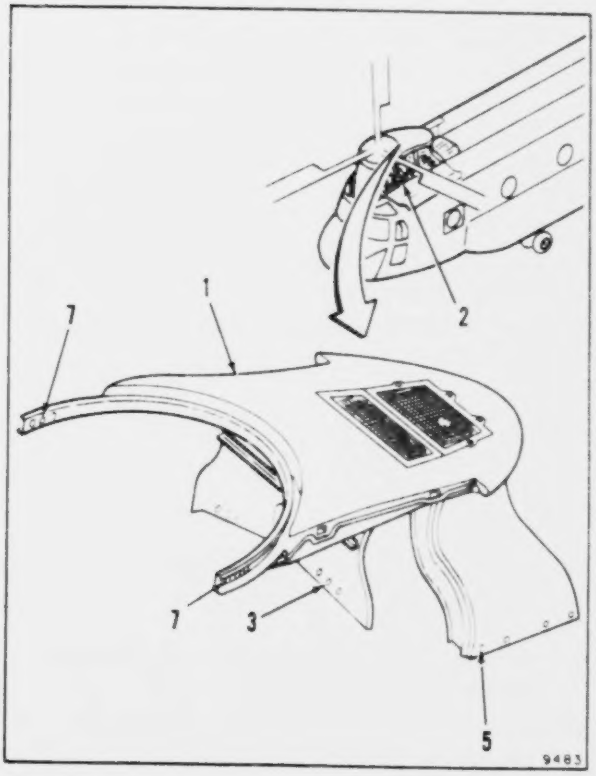
WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

10. **Apply primer (E291) to drilled holes (3, 5, and 7).** Wear gloves (E186).

INSPECT

11. Perform Task 2-68.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-69 REMOVE FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) 2-69

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Portable Workstand

Materials:

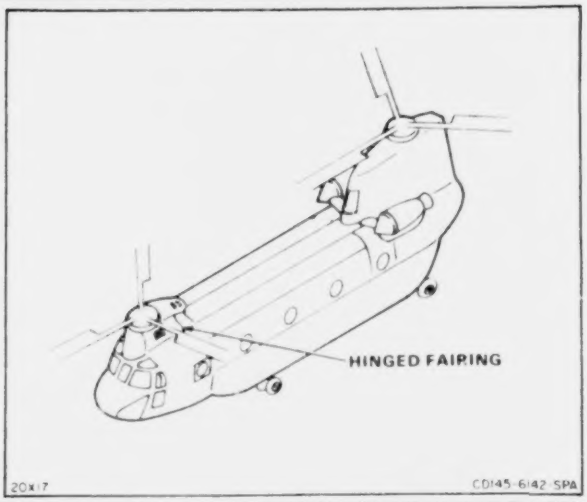
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

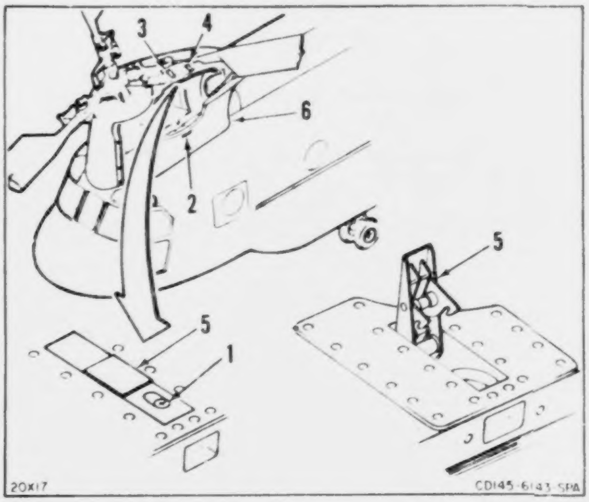
Battery Disconnected (Task 1-39)
Electrical Power Off


HINGED FAIRING
20x17
CD145-6142 SPA

NOTE

Procedure is same to remove right or left forward transmission hinged fairing (work platform). Removal of left fairing is shown here.

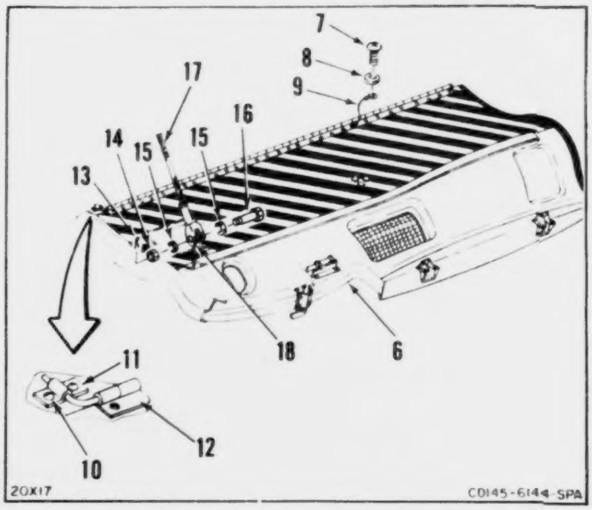
1. Loosen captive screws (1) on three latches (2, 3, and 4).
2. Press in three latch handles (5) and release latches (2, 3, and 4).
3. Pull handles (5) and **open hinged fairing (6).**


3
4
6
2
5
5
1
20x17
CD145-6143-SPA

NOTE

Work platform is reached from workstand.

4. Remove screw (7) and washer (8). **Disconnect electrical lead (9).**
5. **Remove** screw (10) and **hinge clip (11). Rotate hinge (12) outboard.**
6. Have helper support fairing (6).
7. **Remove** cotter pin (13), nut (14), two washers (15), and **bolt (16)** from cable (17) and fitting (18).


7
8
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17
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12
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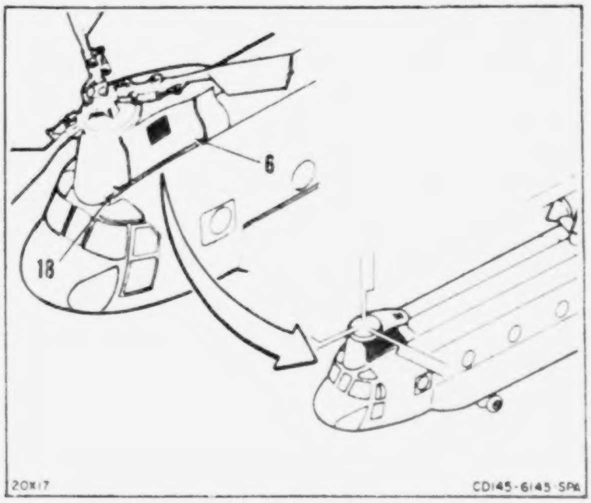
6
20X17
CD145-6144-SPA

GO TO NEXT PAGE

2-69 REMOVE FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) (Continued) 2-69

8. Close fairing (6).
9. **Remove hinge pin (18).**
10. **Remove fairing (6).**


6
18
20X17
CD145-6145-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-70 INSTALL FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) 2-70

INITIAL SETUP

Applicable Configurations:
All

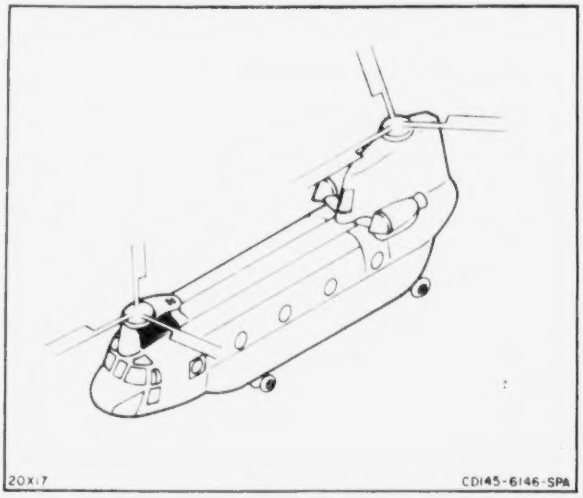
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Portable Work Stand

Materials:
None

Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer (2)

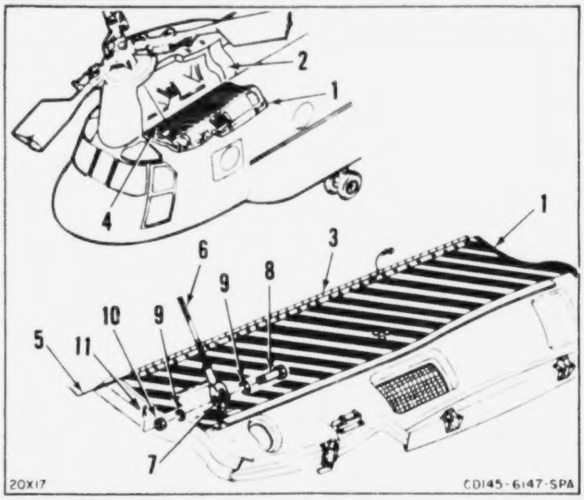
References:
TM 55-1520-240-23P



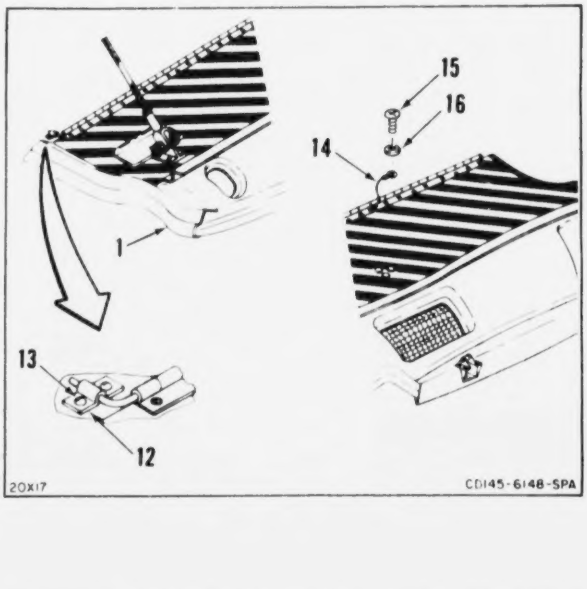
NOTE

Procedure is same to install right or left forward transmission fairing (work platform). Installation of left fairing is shown here.

1. **Position hinged fairing (1)** on fuselage (2).
2. Align hinge leaf (3) on fairing (1) with hinge leaf (4) on fuselage (2).
3. Have helper support fairing (1). **Install hinge pin (5).**
4. Position cable (6) in fitting (7). **Install bolt (8),** two washers (9), nut (10), and cotter pin (11) into strap (6) and fitting (7).



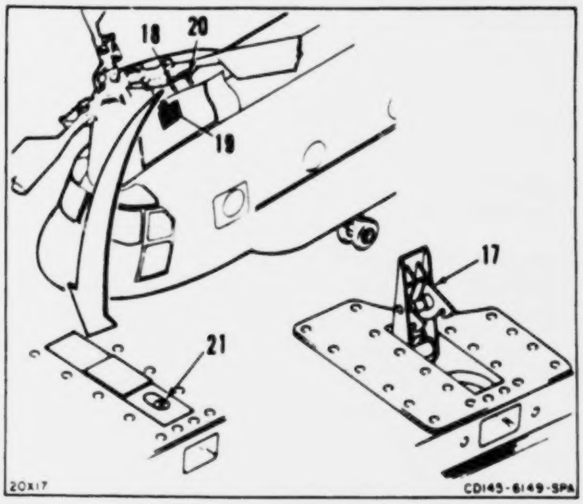
5. **Install hinge clip (12)** and screw (13).
6. **Connect electrical lead (14)** by installing screw (15) and washer (16).
7. **Close fairing (1).**



GO TO NEXT PAGE

2-70 INSTALL FORWARD TRANSMISSION HINGED FAIRING (WORK PLATFORM) (Continued) 2-70

8. Push in three latch handles (17) and lock latches (18, 19, and 20).
9. Tighten captive screws (21) on latches (18, 19, and 20).


18
20
19
17
21
20X17
CD145-6149-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-71 REPAIR COCKPIT EQUIPMENT SUPPORT STRUCTURES — GENERAL INFORMATION 2-71

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

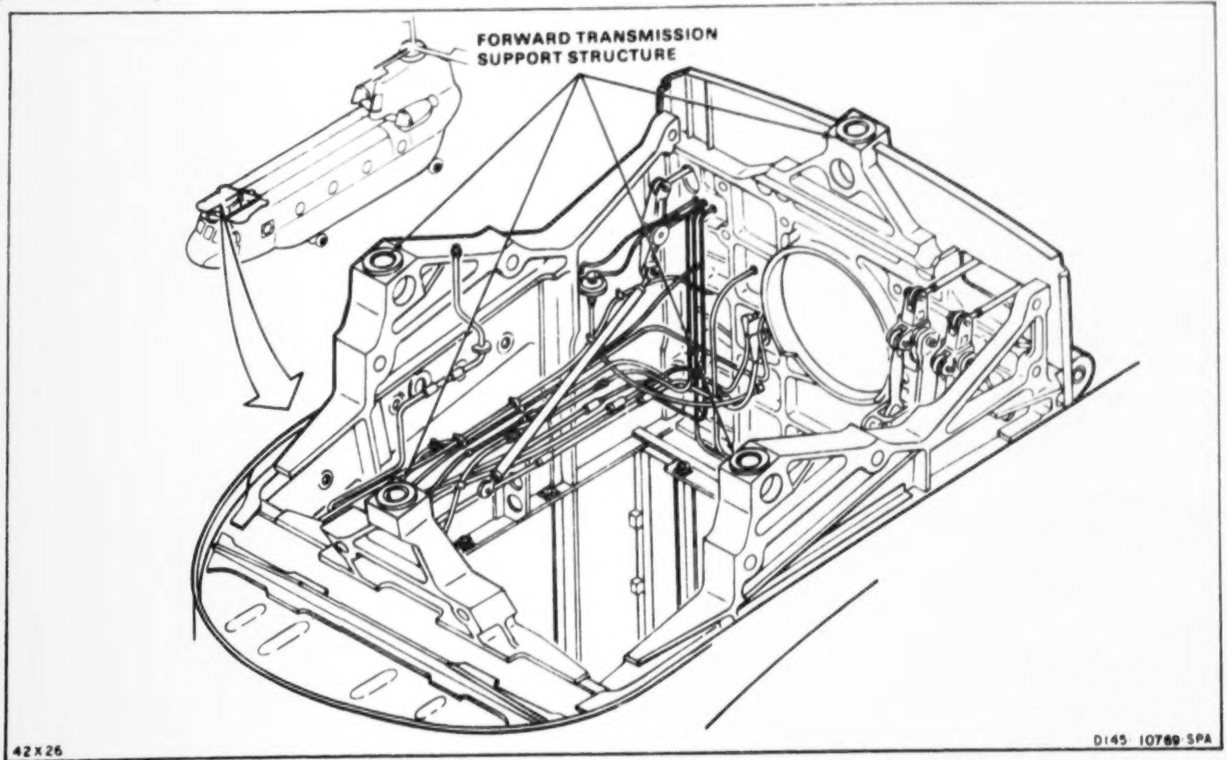
References:
Task 2-72
Task 2-73

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Inspect the following support structures in cockpit fuselage structure assembly for damage:
   a. Forward transmission supports are machined fittings spliced to sheet aluminum webs and reinforced by formed and extruded parts.
   b. Cargo winch and puller supports are integral parts of transmission support fitting.

2. Damage classifications include Minor Damage (Task 2-72) and Major Damage (Task 2-73).



FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-72 REPAIR COCKPIT EQUIPMENT SUPPORT STRUCTURES — MINOR DAMAGE 2-72

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-6
Task 2-71

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Burnish minor damage to supports and support backups. Damage depth, after burnishing, may not exceed 10 percent of material thickness or 0.040-inch, whichever is less (Task 2-6 and Task 2-71).
2. Repair minor damage to support structure extrusions by burnishing. Damage must be within limits shown in illustration.

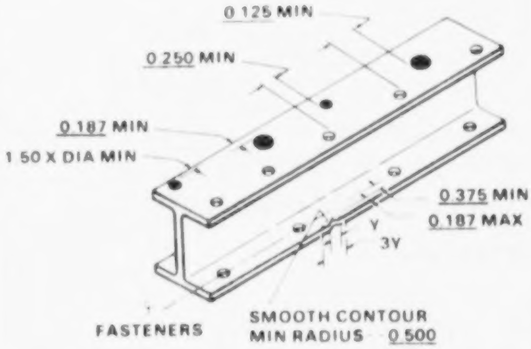
NOTE

- ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED
- MAX ALLOWABLE

Y = 0.750
Z = 1/2 OF L

SYMBOLS

○ - - ATTACHMENT HOLE
● - - 0.3125 MAX DIA HOLE
● - - DENT


0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
FASTENERS
SMOOTH CONTOUR MIN RADIUS 0.500
20 X 26
D145-10771-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-73 REPAIR COCKPIT EQUIPMENT SUPPORT STRUCTURES — MAJOR DAMAGE (AVIM) 2-73

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-13
Task 2-71
Task 2-7
Task 2-335

Equipment Condition:
As Required:

General Safety Instructions:
As Required

---

1. Patch major damage to internal webs that does not affect more than 50 percent of cross-section (Task 2-13 and Task 2-71).
2. Patch damage to formed parts and extruded parts that does not affect radius or heel (Task 2-7).
3. Repair damage to internal webs that affects more than 50 percent of cross-section by insertion (Task 2-13).
4. Repair damage affecting radius or heel of formed or extruded parts by insertion (Task 2-7).
5. Replace parts with loss of major portion of length, or many damages (Task 2-71).
6. Replace bushings that are damaged or have excessive wear (Task 2-335).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-73.1 REMOVE FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Bushing Puller (Appx E-45)

Materials:

Crocus Cloth (E122)

Methyl-Ethyl-Ketone (E244)

Cloths (E120)

Protective Gloves (E186)

Personnel Required:

Aircraft Structural Repairer

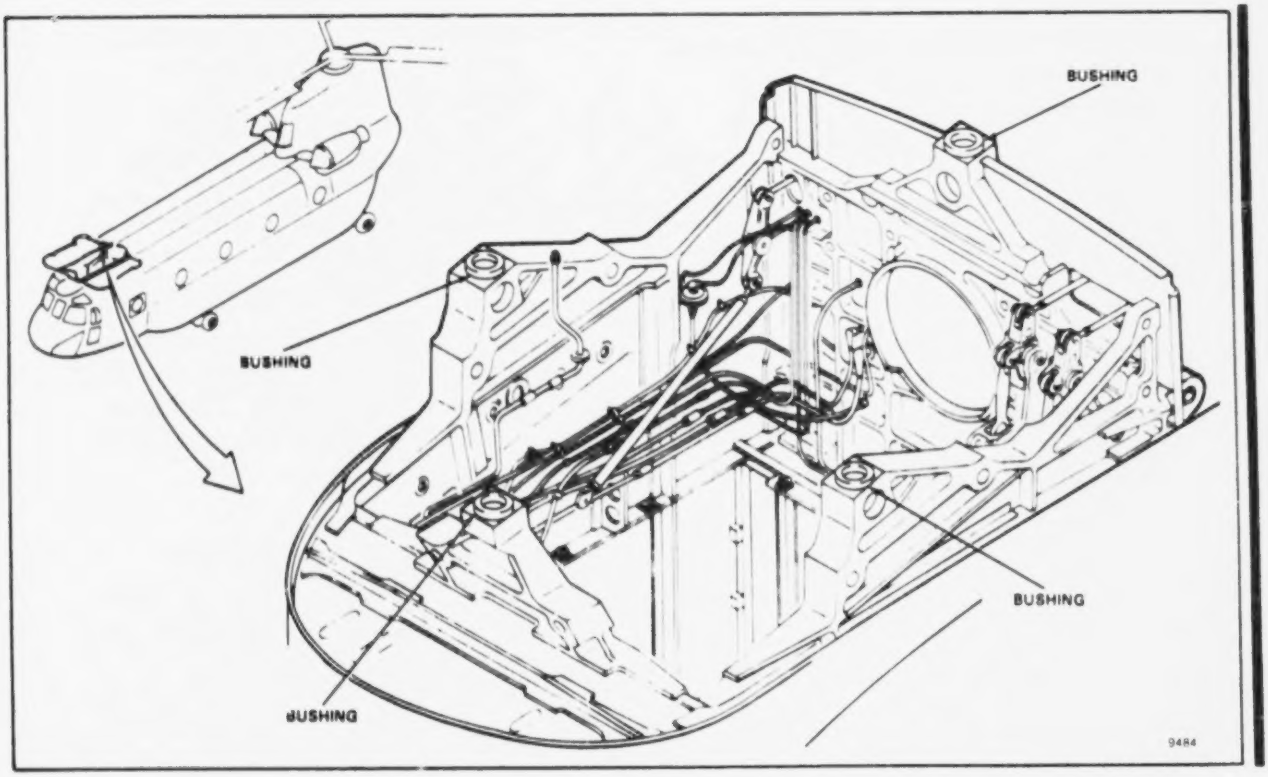
Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

Forward Transmission Removed (Task 6-46)



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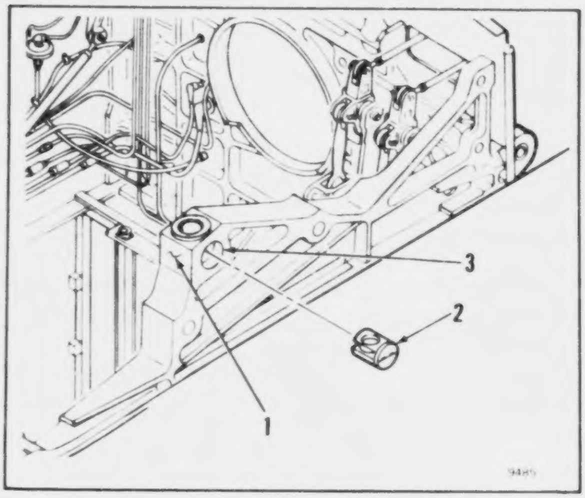
2-73.1 REMOVE FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS (Continued) 2-73.1

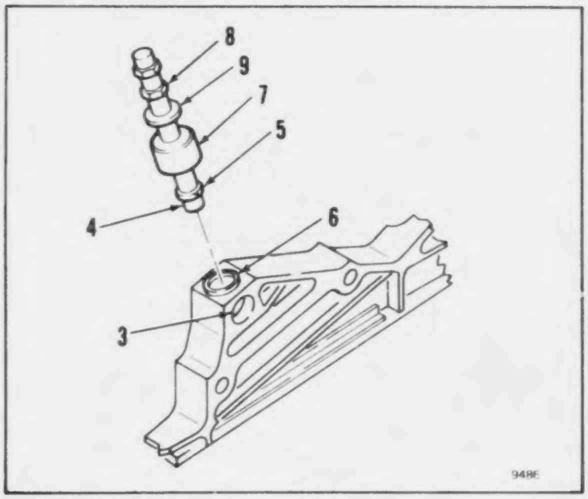
NOTE

Each of four bushings is removed in same manner. Left side shown here.

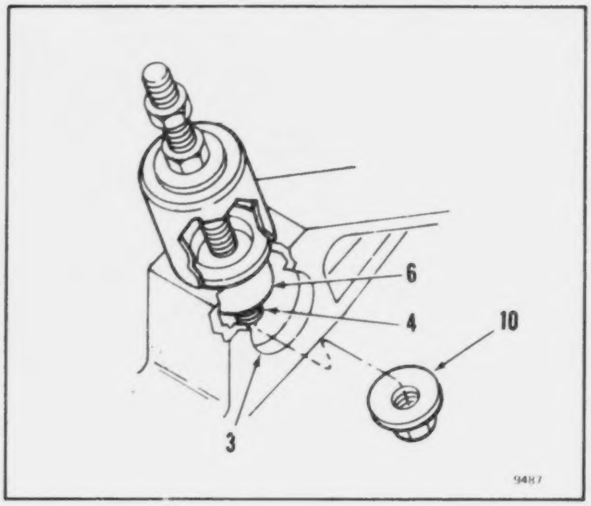
1. Reach behind structure (1) and **push barrel nut (2) out** of bore (3).
2. Inspect thread of barrel nut (2). Discard nut if thread is worn or damaged.



3. **Install stud (4),** with guide bar (5) down through bushing (6).
4. **Place yoke (7) over bushing (6).**
5. **Adjust nut (8)** against load collar (9) so that bottom of stud (4) is just above center line of bore (3).



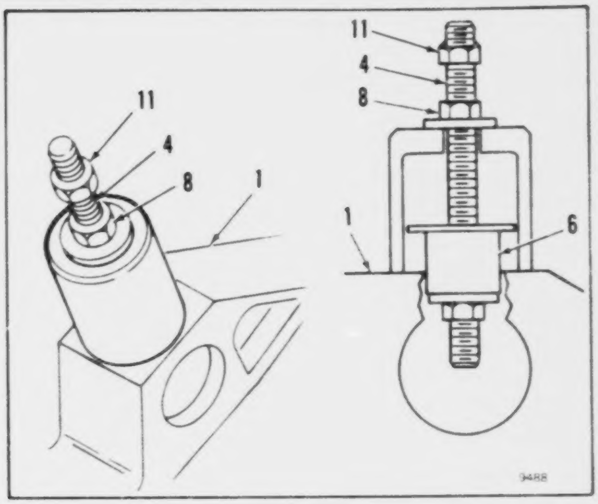
6. **Insert nut and washer assembly (10)** through bore (3). Install on bottom end of stud (4) against bushing (6).



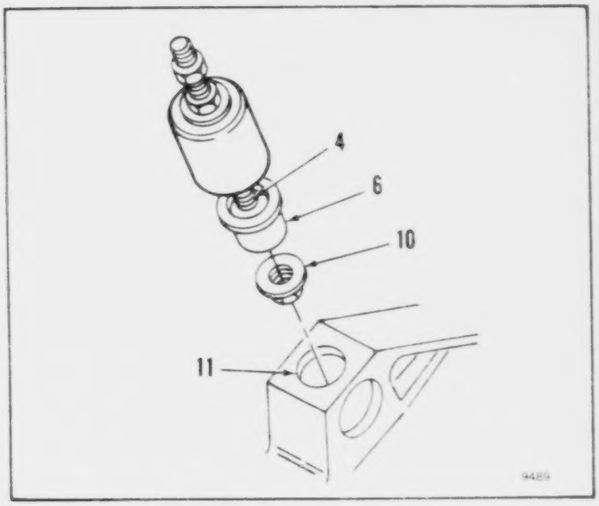
GO TO NEXT PAGE

2-73.1 REMOVE FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS (Continued) 2-73.1

7 Keep stud (4) from turning by holding nut (11) with a wrench. **Tighten nut (8)** to lift bushing (6) out of structure (1).



8 **Remove nut and washer assembly (10)** from stud (4). **Remove bushing (6).**



WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

9 **Inspect bore (11).** Clean bore with crocus cloth (E122). Remove residue with clean cloths (E120) damp with methyl-ethyl-ketone (E244). Use gloves (E186).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-73.2 INSTALL FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS 2-73.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Heat Gun

Pyrometer

Wood Block

Materials:

Epoxy Primer (E292)

Protective Gloves (E186)

Kevlar Gloves (E187)

Personnel Required:

Aircraft Structural Repairer

Inspector

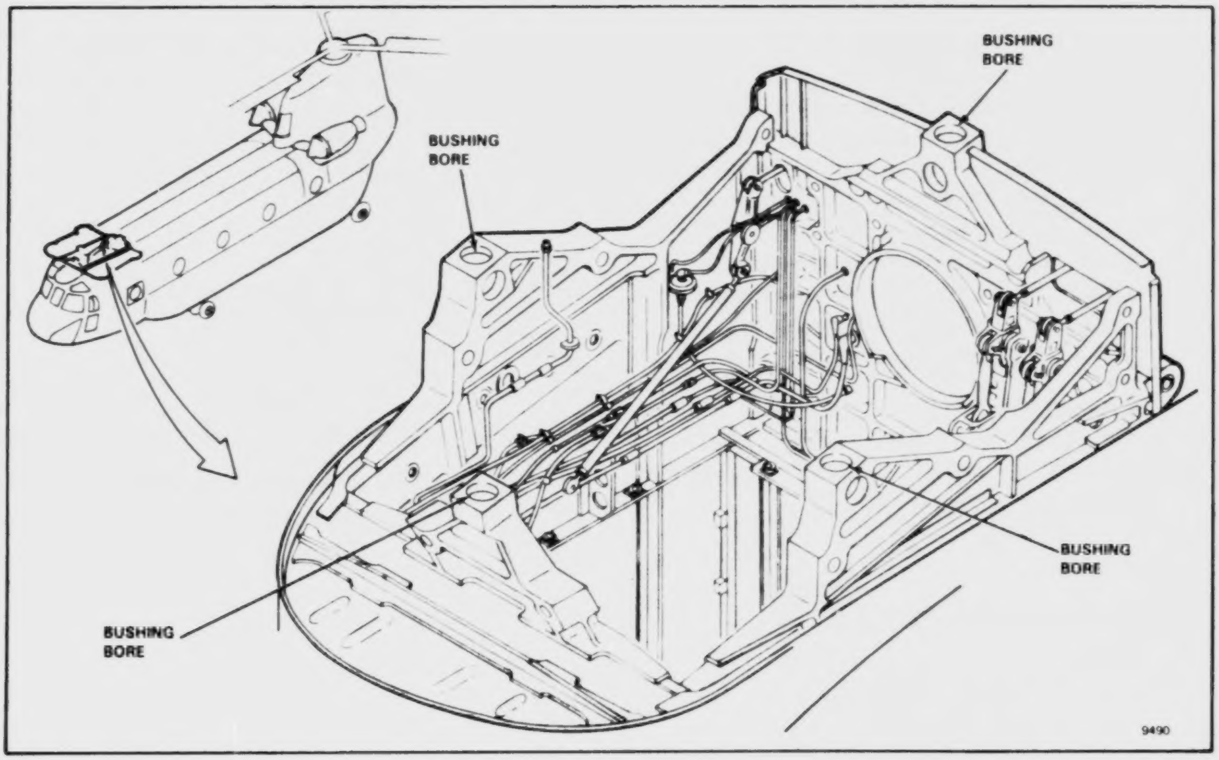
References:

TM 55-1520-240-23P

General Safety Instructions:

WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



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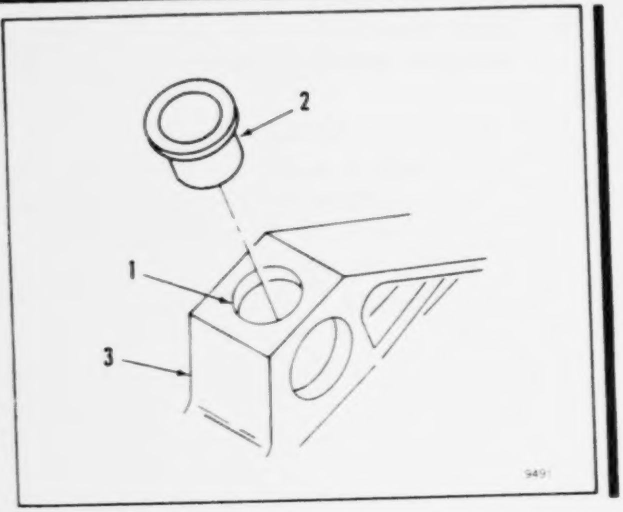
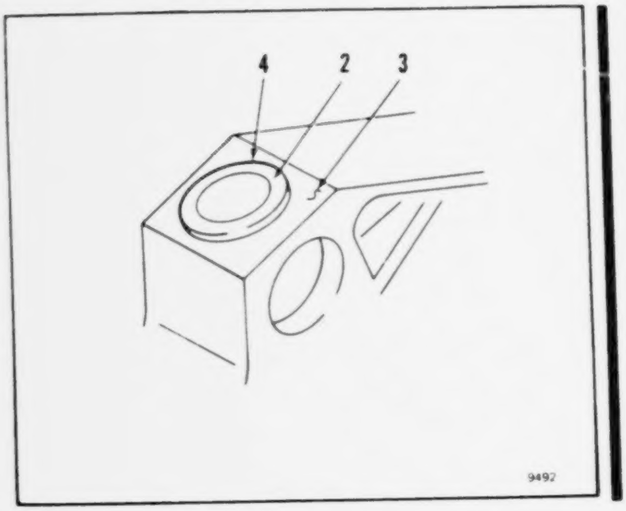
2-73.2 INSTALL FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS (Continued)



CAUTION

If support structure surface is heated to above 250°F (121°C), damage to heat treatment will occur.

1. **Heat surface of support structure** around bushing bore (1) for at least 15 minutes. Use a heat gun. Do not heat surface above 250°F. Monitor temperature with a pyrometer.
2. **Coat outside diameter of bushing (2) with epoxy primer (E292).** Wear gloves (E186).
3. **Install bushing (2)** wet with primer (E292) in heated support structure (3). Wear Kevlar gloves (E187).
4. **Hold bushing (2) in place** by pressing bushing flange (4) against face of support structure (3). Use a wood block or equivalent. Hold **until structure has cooled.**



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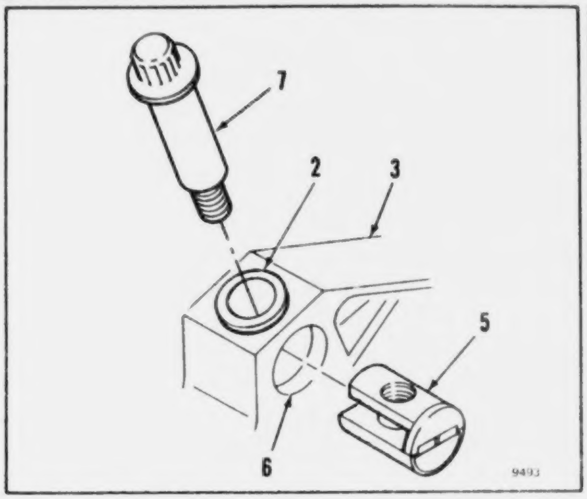
2-73.2 INSTALL FORWARD TRANSMISSION SUPPORT STRUCTURE BUSHINGS (Continued) 2-73.2

5. **Apply a fillet of primer (E292)** around mating line of bushing (2) and support structure (3).
6. **Install barrel nut (5)** in bore (6).
7. **Install** forward transmission **mounting bolt** 145DS022-4 (7) through bushing (2) into bore of barrel nut (5). **Align barrel nut** as needed to accept bolt.
8. Remove bolt (7).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-74 MINOR REPAIR COCKPIT FLOOR 2-74

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
Primer (E291)
Paint, Non-Skid (E259)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-10

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1 Nicks, dents, and scratches which can be removed by burnishing are permissible.

2 Cracks not exceeding 1 inch in length which have been stop-drilled are permissible.

3 Small round or oval holes not exceeding a trimmed diameter of 1/2 inch are permissible.

WARNING

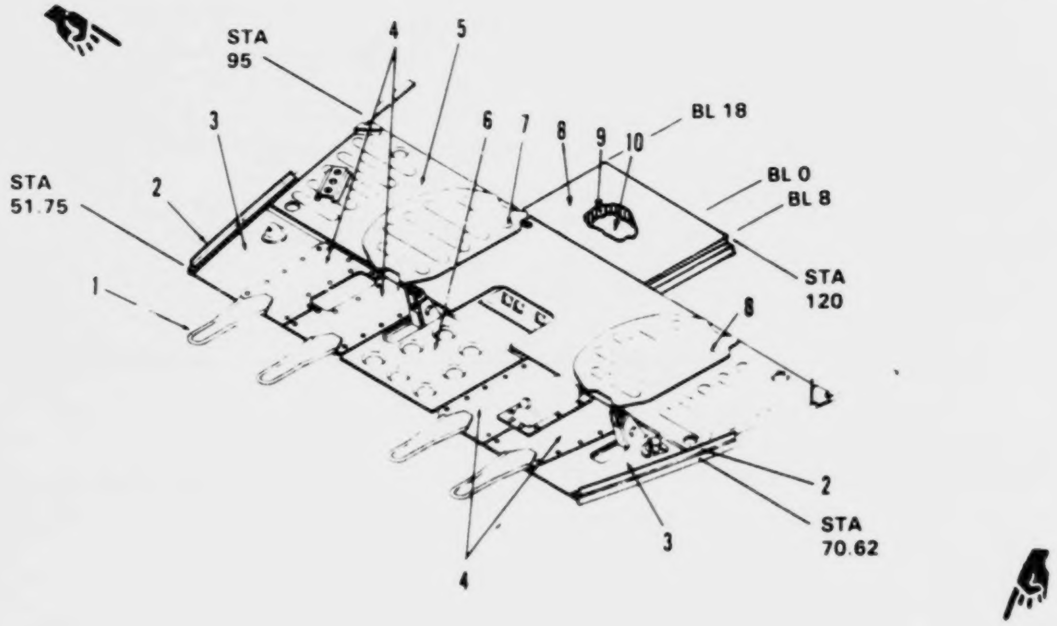
Primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

4 Plug holes not exceeding 1/4 inch in diameter with a type B rivet. Install the rivets wet with zinc chromate primer (E291).

GO TO NEXT PAGE

2-74 MINOR REPAIR COCKPIT FLOOR (Continued) 2-74

TOP VIEW



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	HEEL SLIDE	0.025 17-7 PH CRES	NOTE B.	
2	ANGLE	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	NOTE E.
3	WEB	0.040 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
4	COVER	0.050 AZ31B-H24 MAG	0.050 AZ31B-H24 MAG	NOTE E.
5	WEB	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13
6	WEB	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
7	DOOR	0.032 2024-T3 CLAD	0.040 2024-T3 CLAD	NOTE E.
8	TOP SKIN	0.020 2024-T4 CLAD (RIGIDIZED)	NOTES C. AND D.	- -
9	CORE	3.4-1/4-15N-3003	NOTE C.	- -
10	BOTTOM	0.016 7075-T6 CLAD	NOTE C.	- -

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. REPLACE WITH NEW HEEL SLIDE, 114S1551-171

C. REFER TO TM55-1500-204-25/1 FOR TYPICAL REPAIRS TO SANDWICH HONEYCOMB STRUCTURE

D. APPLY NON-SKID PAINT (E259) IF REPAIRS ARE MADE WITHIN WALKWAY AREA OR IF EXISTING COATING IS WORN

E. TM 55-1520-204-25/1

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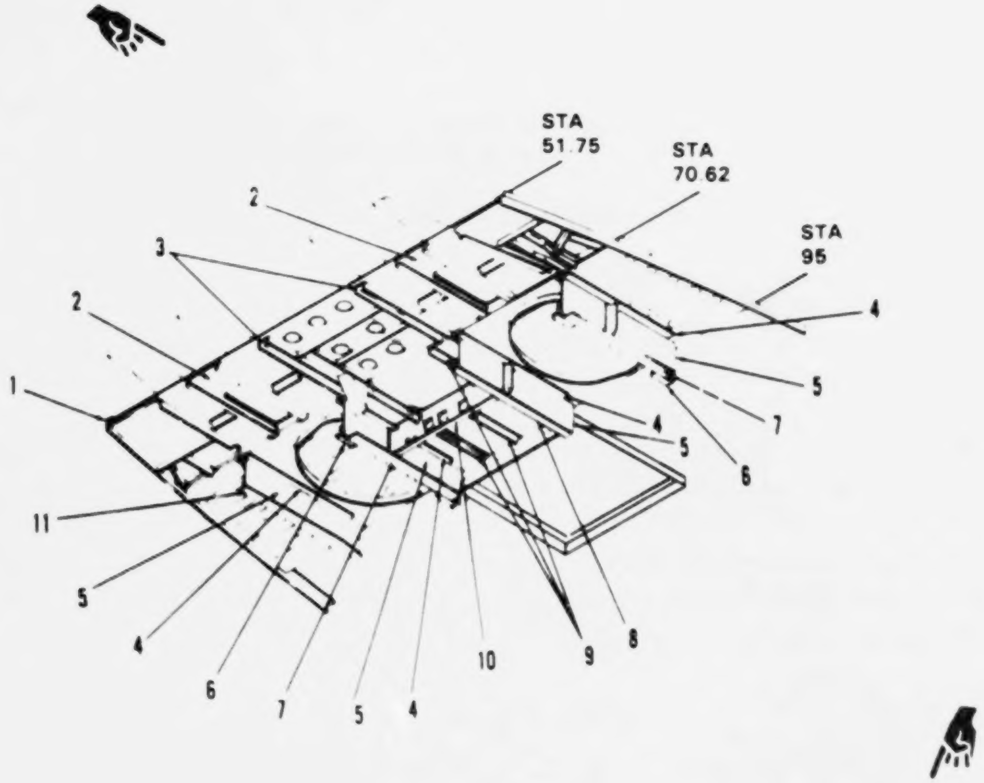
2-74 MINOR REPAIR COCKPIT FLOOR (Continued) 2-74

BOTTOM VIEW



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	0.063 7075-T6 BARE	0.071 7075-T6 CLAD	NOTE A.
2	COVER REST	0.050 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE A.
3	CHANNEL	0.050 7075-T6 BARE	0.063 7075-T6 CLAD	2-13
4	CAP	AND10136-1603 7075-T6	0.100 4130	NOTE A.
5	WEB	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
6	ANGLE	BAC1503-2731 7075-T6	0.063 4130	NOTE A.
7	ANGLE	AND10133-0601 7075-T6	0.071 4130	NOTE A.
8	CAP	AND10133-0601 7075-T6	0.071 4130	NOTE A.
9	STIFFENER	ALCOA 22885 7075-T6	0.063 4130	2-29
10	CHANNEL	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD	2-10
11	CAP	ALCOA 33495 7075-T6	0.071 4130	NOTE A.

NOTES
A. TM 55-1520-204-25/1

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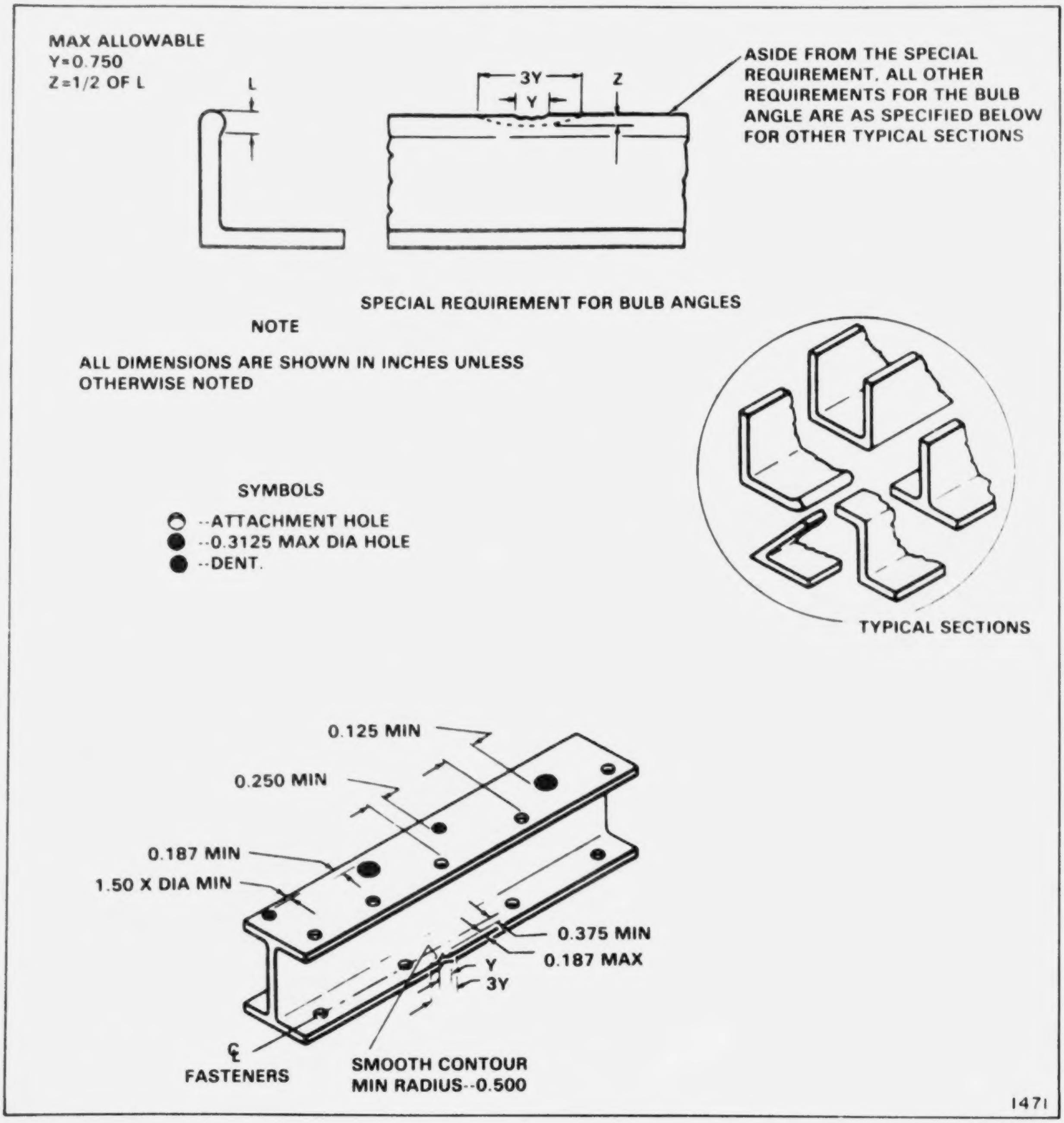
2-74 MINOR REPAIR COCKPIT FLOOR (Continued) 2-74

5. See examples of damage repair to extruded parts.


MAX ALLOWABLE
Y=0.750
Z=1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SPECIAL REQUIREMENT FOR BULB ANGLES
TYPICAL SECTIONS
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄ FASTENERS
SMOOTH CONTOUR MIN RADIUS--0.500
1471

NOTE

ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

SYMBOLS

○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE
● --DENT.

INSPECT

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-75 MINOR REPAIR CABIN DOOR COAMING 2-75

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Technical Inspector's Tool Kit,
NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. The coaming is made of molded, 6-ply, laminated, plastic-impregnated glass cloth. Formed aluminum alloy 6060-T6 parts are riveted to the lower sides and bottom of coaming.

2. An angle made of 2024-T4 clad aluminum alloy is riveted to body skin across top of door opening.

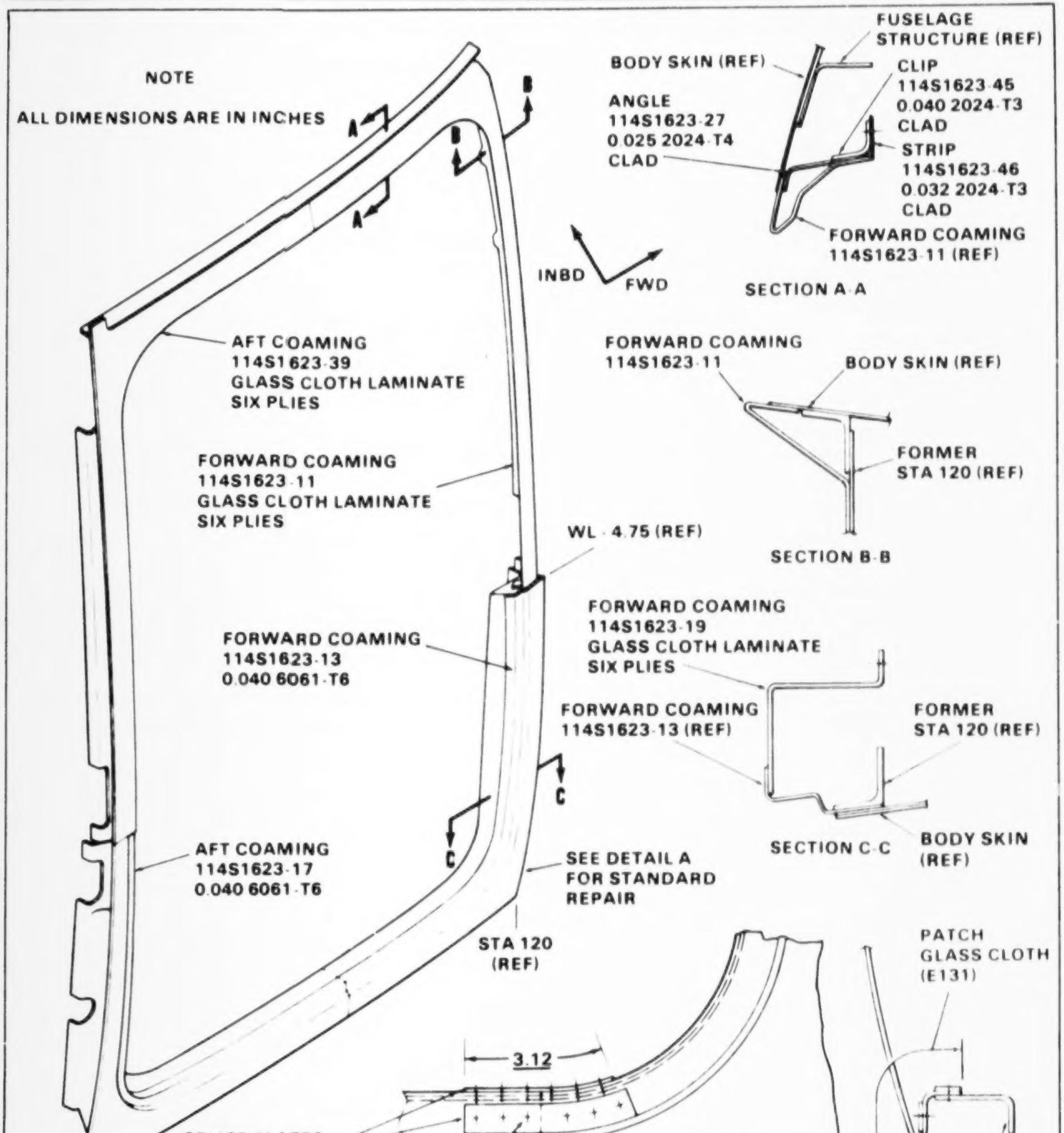
3. Repair damage to impregnated glass cloth parts such as slight voids, small wrinkles, or holes which can be filled with type A rivet.

4. Repair minor damage to formed metal parts such as nicks, dents, and scratches by burnishing. Fill small holes with type A rivet.

5. Damage shall not destroy sealing quality of coaming and must not interfere with door operation.

GO TO NEXT PAGE

2-75 MINOR REPAIR CABIN DOOR COAMING (Continued) 2-75


NOTE
ALL DIMENSIONS ARE IN INCHES
A
A
B
B
C
C
FUSELAGE STRUCTURE (REF)
BODY SKIN (REF)
CLIP 114S1623-45 0.040 2024-T3 CLAD
ANGLE 114S1623-27 0.025 2024-T4 CLAD
STRIP 114S1623-46 0.032 2024-T3 CLAD
FORWARD COAMING 114S1623-11 (REF)
INBD
FWD
SECTION A-A
AFT COAMING 114S1623-39 GLASS CLOTH LAMINATE SIX PLIES
FORWARD COAMING 114S1623-11
BODY SKIN (REF)
FORMER STA 120 (REF)
FORWARD COAMING 114S1623-11 GLASS CLOTH LAMINATE SIX PLIES
WL - 4.75 (REF)
SECTION B-B
FORWARD COAMING 114S1623-19 GLASS CLOTH LAMINATE SIX PLIES
FORWARD COAMING 114S1623-13 0.040 6061-T6
FORWARD COAMING 114S1623-13 (REF)
FORMER STA 120 (REF)
SECTION C-C
BODY SKIN (REF)
AFT COAMING 114S1623-17 0.040 6061-T6
SEE DETAIL A FOR STANDARD REPAIR
STA 120 (REF)
PATCH GLASS CLOTH (E131)
3.12
SPLICE PLATES 0.020 301 CRES 1/4 OR 1/2 H
LOOKING INBOARD
FORWARD COAMING 114S1623-13 (REF)
FORWARD COAMING 114S1623-19 (REF)
STA 160 (REF)
RIVETS MS20600AD (AS REQ'D)
DETAIL A
42 X 51
D145-9747-SPA

Cabin Door Coaming Repairs

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-76 REPAIR CABIN DOOR COAMING (AVIM) 2-76

INITIAL SETUP

Applicable Configurations:
All

Tools:
Heat Lamps
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
Glass Cloth (E130)
0.020-Inch Thick 301 Stainless Steel, 1/4 or 1/2 Hard
Cellophane (E98)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-32

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair damage to formed metal parts not affecting a radius by patching.

2. Repair cracks in forward lower corner of coaming as follows.

NOTE

The coaming may be cracked because the lower right side longeron is cracked.

a. Repair right side longeron if cracked (Task 2-32).

b. Stop-drill cracks or remove damaged material, sand, roughen, and clean as directed in TM 55-1500-204-25/1.

c. Cut a patch of glass cloth (E130). This patch shall be bonded to existing coaming and shall be covered by two stainless steel plates. Patch is used to provide a watertight seal.

d. Fabricate two splice plates from 0.020-inch thick 301 stainless steel, 1/4 or 1/2 hard. Drill necessary attachment holes in splice plates and coaming. Do not install rivets at this time.

e. Prepare bonding agent. Refer to TM 55-1500-204-25/1. Wear gloves (E186).

f. Impregnate patch of glass cloth by brushing bonding agent into glass cloth.

g. Wrap patch of glass cloth over damaged area on cabin door coaming.

h. Place a piece of cellophane (E98) over patch. Press patch with a continual smoothing motion to remove air pockets. Carefully remove cellophane.

i. Place splice plates on patch. Install splice parts using blind rivets MS20600AD.

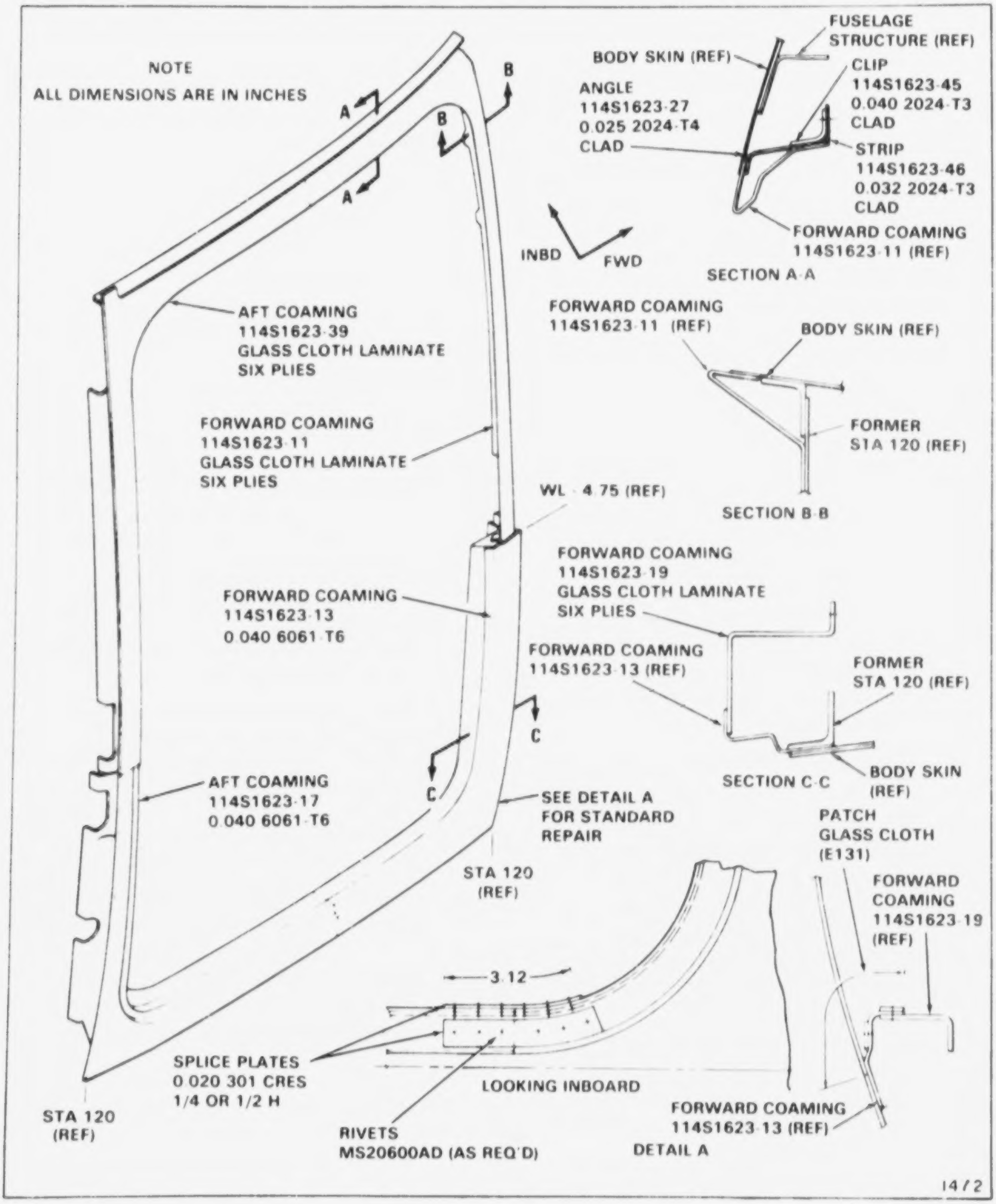
j. Cure patch with heat lamps until exposed portions of patch are hard and tack-free.

k. Loss of more than 50 percent of length of member or numerous isolated damages is considered extensive damage and shall be replaced.

l. Extensive damage to forward or aft coaming shall be repaired by splicing in a section of original coaming.

GO TO NEXT PAGE

2-76 REPAIR CABIN DOOR COAMING (AVIM) (Continued) 2-76


NOTE
ALL DIMENSIONS ARE IN INCHES
A
A
B
B
FUSELAGE STRUCTURE (REF)
BODY SKIN (REF)
CLIP 114S1623-45 0.040 2024-T3 CLAD
ANGLE 114S1623-27 0.025 2024-T4 CLAD
STRIP 114S1623-46 0.032 2024-T3 CLAD
FORWARD COAMING 114S1623-11 (REF)
INBD
FWD
SECTION A-A
AFT COAMING 114S1623-39 GLASS CLOTH LAMINATE SIX PLIES
FORWARD COAMING 114S1623-11 (REF)
BODY SKIN (REF)
FORMER STA 120 (REF)
FORWARD COAMING 114S1623-11 GLASS CLOTH LAMINATE SIX PLIES
WL - 4.75 (REF)
SECTION B-B
FORWARD COAMING 114S1623-19 GLASS CLOTH LAMINATE SIX PLIES
FORWARD COAMING 114S1623-13 0.040 6061-T6
FORWARD COAMING 114S1623-13 (REF)
FORMER STA 120 (REF)
C
C
SECTION C-C
BODY SKIN (REF)
AFT COAMING 114S1623-17 0.040 6061-T6
SEE DETAIL A FOR STANDARD REPAIR
STA 120 (REF)
PATCH GLASS CLOTH (E131)
FORWARD COAMING 114S1623-19 (REF)
3.12
SPLICE PLATES 0.020 301 CRES 1/4 OR 1/2 H
LOOKING INBOARD
STA 120 (REF)
FORWARD COAMING 114S1623-13 (REF)
RIVETS MS20600AD (AS REQ'D)
DETAIL A
1472

INSPECT

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-77 REPAIR CABIN DOOR COAMING FORWARD LOWER CORNER (AVIM) 2-77

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114
Heat Lamp

Materials:
Glass Cloth (E131)
Cellophane (E98)

Parts:
Rivets
301 Stainless Steel Plates, 0.020-Inch Thick, 1/4 to 1/2 Hard As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-21
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1 Repair damage to forward metal parts on cabin door coaming that does not affect radius. Patch cracks in forward lower corner of coaming as follows.

NOTE

Coaming crack may result from cracked lower right side longeron (Task 2-21).

a. Stop drill cracks or remove damaged material. Sand, roughen, and clean (TM 55-1500-204-25/1).

b. Cut patch of glass cloth (E130). Patch will be bonded to coaming and covered by splice plates. Patch provides watertight seal.

c. Make two splice plates from 1/4 or 1/2-hard 301 stainless steel 0.020 thick. Drill holes in splice plates and coaming. Do not install rivets at this time.

d. Prepare bonding agent (TM 55-1500-204-25/1).

e. Brush bonding agent into glass cloth.

f. Position patch over damaged area.

g. Place piece of cellophane (E98) over patch. Press out air pocket in smooth continuous motion. Remove cellophane slowly.

h. Position splice plates on patch. Install rivets MS20600AD.

i. Cure patch. Use heat lamp. Cure until edges of patch are hard and tack-free.

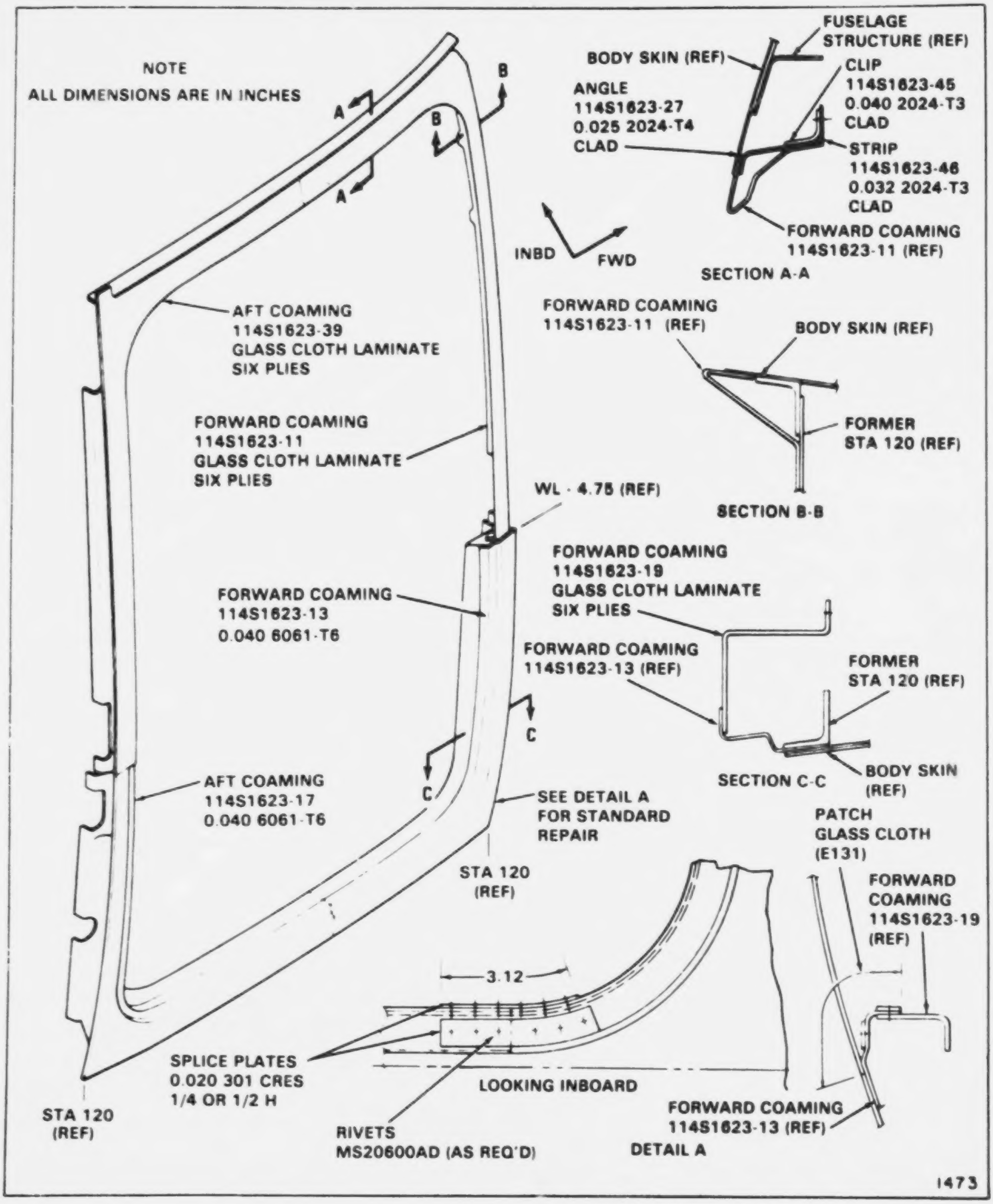
j. Repair extensive damage by splicing in section of original coaming.

NOTE

Extensive damage consists of damage to 50 percent of length of member, or numerous damages.

GO TO NEXT PAGE

2-77 REPAIR CABIN DOOR COAMING FORWARD LOWER CORNER (AVIM) (Continued) 2-77


NOTE
ALL DIMENSIONS ARE IN INCHES
A
A
B
B
AFT COAMING
114S1623-39
GLASS CLOTH LAMINATE
SIX PLIES
FORWARD COAMING
114S1623-11
GLASS CLOTH LAMINATE
SIX PLIES
WL - 4.75 (REF)
FORWARD COAMING
114S1623-13
0.040 6061-T6
C
C
AFT COAMING
114S1623-17
0.040 6061-T6
SEE DETAIL A
FOR STANDARD
REPAIR
STA 120
(REF)
STA 120
(REF)
BODY SKIN (REF)
FUSELAGE
STRUCTURE (REF)
ANGLE
114S1623-27
0.025 2024-T4
CLAD
CLIP
114S1623-45
0.040 2024-T3
CLAD
STRIP
114S1623-46
0.032 2024-T3
CLAD
FORWARD COAMING
114S1623-11 (REF)
INBD
FWD
SECTION A-A
FORWARD COAMING
114S1623-11 (REF)
BODY SKIN (REF)
FORMER
STA 120 (REF)
SECTION B-B
FORWARD COAMING
114S1623-19
GLASS CLOTH LAMINATE
SIX PLIES
FORWARD COAMING
114S1623-13 (REF)
FORMER
STA 120 (REF)
BODY SKIN
(REF)
SECTION C-C
PATCH
GLASS CLOTH
(E131)
FORWARD
COAMING
114S1623-19
(REF)
3.12
SPLICE PLATES
0.020 301 CRES
1/4 OR 1/2 H
RIVETS
MS20600AD (AS REQ'D)
LOOKING INBOARD
FORWARD COAMING
114S1623-13 (REF)
DETAIL A
1473

INSPECT

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-78 REPAIR COCKPIT FLOOR 2-78

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-7
Task 2-351

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Patch damage affecting an area less than 25 percent of a skin panel (Task 2-7).
2. Repair damage affecting an area more than 25 percent of a skin panel, or which affects boundary members, by insertion (Task 2-7).
3. If magnesium alloys and dissimilar metals are affected, refer to Task 2-351.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-79 REMOVE COCKPIT FLOOR ACCESS COVER 2-79

INITIAL SETUP

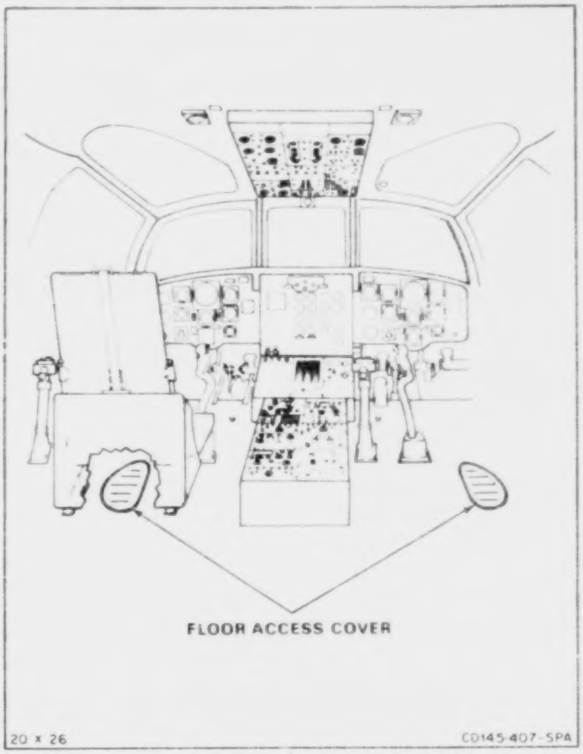
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Seat Removed From Above Access Cover (Task 2-111)



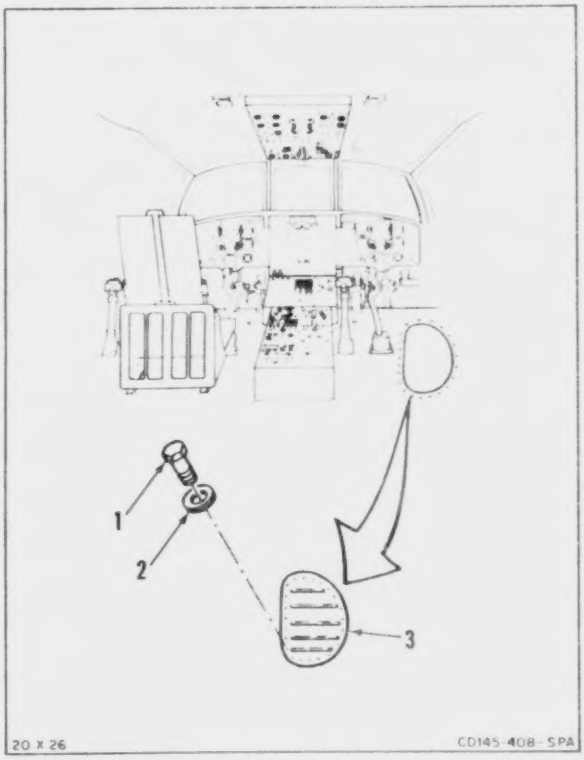
NOTE

Procedure is same for access cover under pilot's or copilot's seat. Access cover under pilot's seat is shown here.

1. **Remove 23 bolts (1) and washers (2).**
2. **Lift off access cover (3).**

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-80 INSTALL COCKPIT FLOOR ACCESS COVER 2-80

INITIAL SETUP

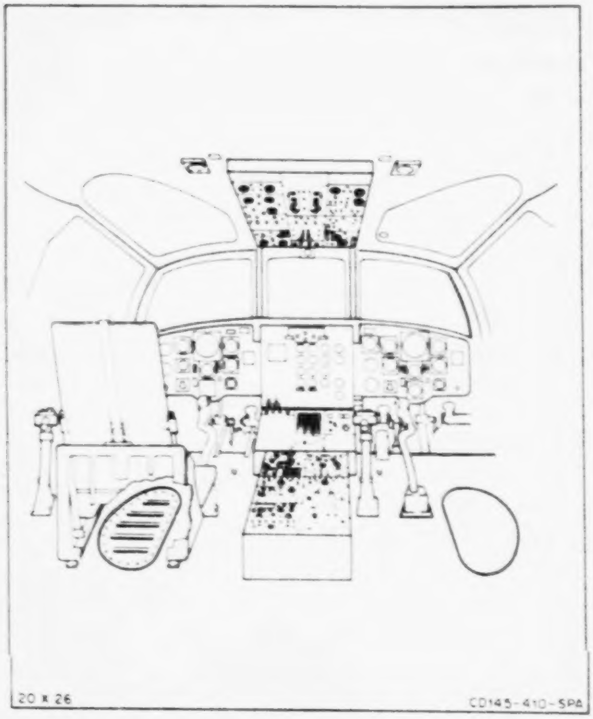
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P



NOTE

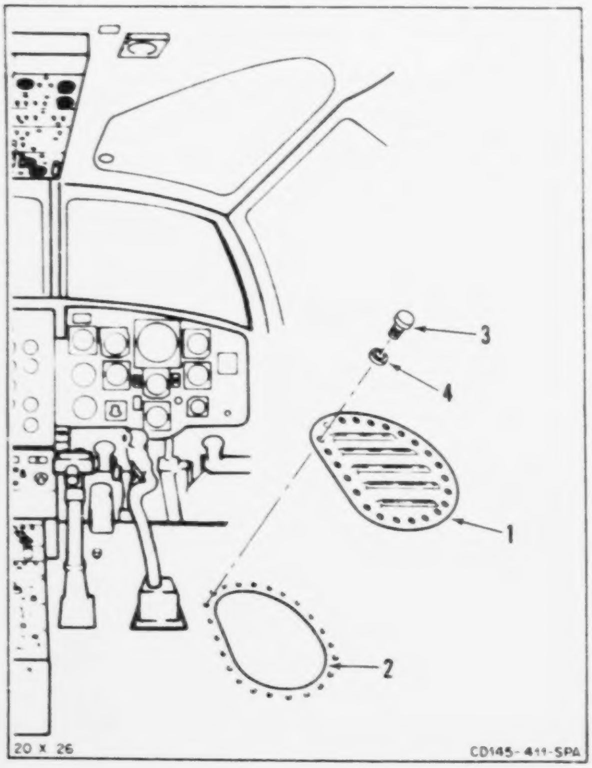
Procedure is same for access cover under pilot's or copilot's seat. Access cover under pilot's seat is shown here.

1. **Position access cover (1)** on structure (2).
2. **Install 23 bolts (3) and washers (4).**

FOLLOW-ON MAINTENANCE:

Install seat above access cover (Task 2-114).

END OF TASK



2-81 REMOVE COCKPIT FORWARD FLOOR COVERS 2-81

INITIAL SETUP

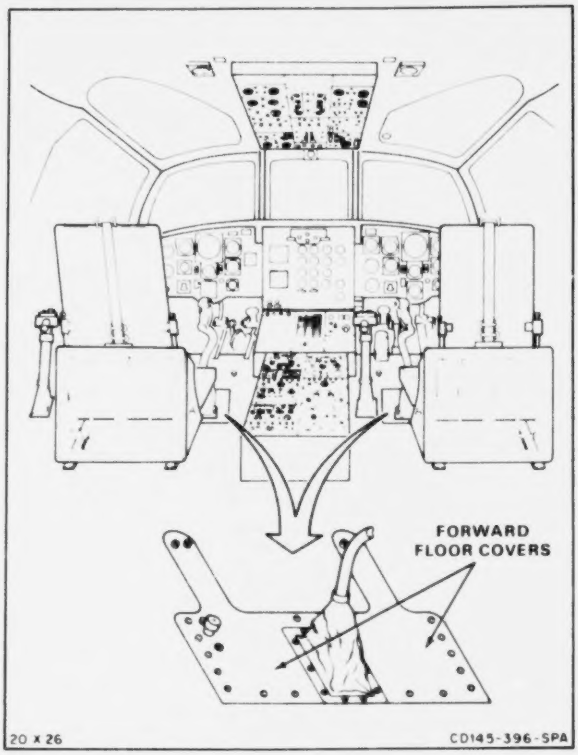
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

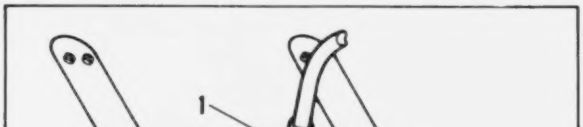
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


FORWARD FLOOR COVERS
20 X 26
CD145-396-SPA

NOTE

Procedure is same for pilot's or co-pilot's side of cockpit. Pilot's side of cockpit is shown here.

1. **Remove control stick boot (1)** as follows:
   a. Loosen boot fastener (2).
   b. Loosen 10 fasteners (3).


1
3
2
20 X12
CD145-393-SPA

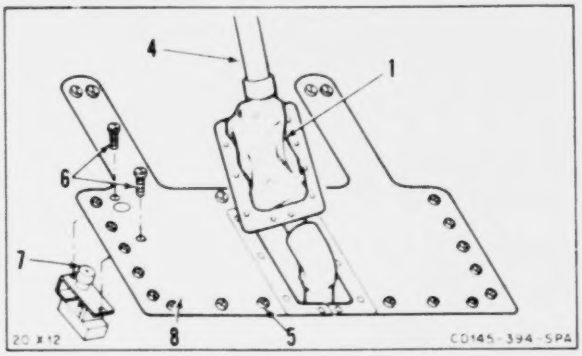
GO TO NEXT PAGE

2-81 REMOVE COCKPIT FORWARD FLOOR COVERS (Continued) 2-81

c. Slide boot (1) up control stick (4) and secure it.

2. **Loosen 20 fasteners (5).**

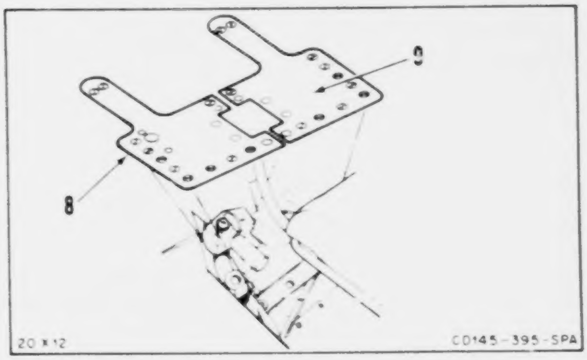
3. Remove two screws (6) from switch (7). Lift up cover (8). Remove cover from switch.


4
1
6
7
8
5
20 x 12
CD145-394-SPA

4. **Remove floor covers (8 and 9).**

FOLLOW-ON MAINTENANCE:

None


9
8
20 x 12
CD145-395-SPA

END OF TASK

2-82 INSTALL COCKPIT FORWARD FLOOR COVERS 2-82

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

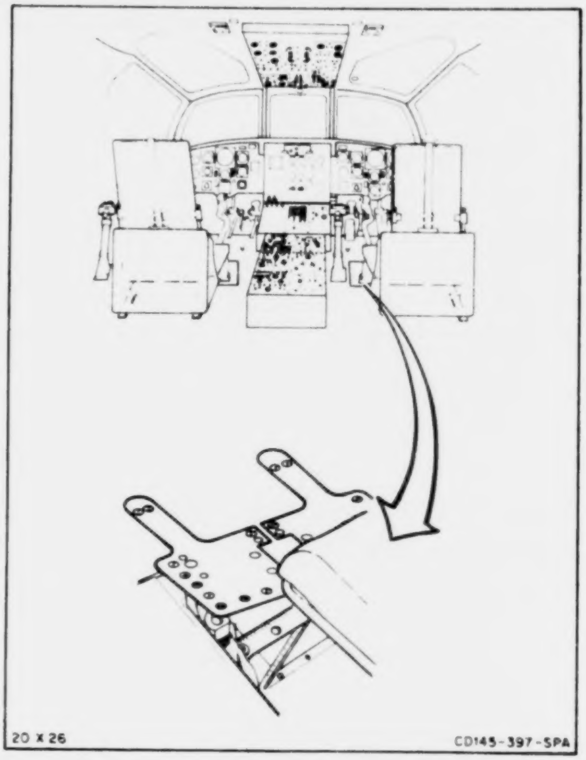
None

Personnel Required:

67U10 Medium Helicopter Repairer
67U30 Inspector

References:

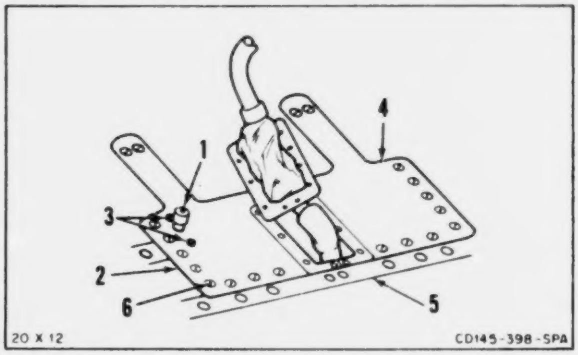
TM 55-1520-240-23P

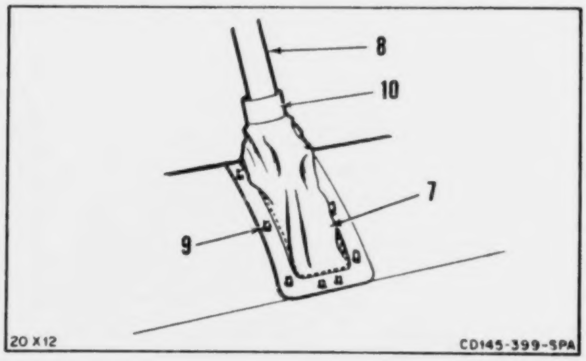


NOTE

Procedure is same for pilot's or copilot's side of cockpit. Pilot's side of cockpit is shown here.

1. Align holes in switch (1) with holes in cover (2).
2. Install two screws (3) in cover (2).
3. **Install floor covers (4)** on supports (5).
4. **Install and secure 20 fasteners (6).**
5. **Install control stick boot (7):**
    - a. Slide boot (7) down control stick (8).
    - b. Secure 10 fasteners (9).
    - c. Secure fastener (10).





INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-83 REMOVE COCKPIT AFT FLOOR PANEL 2-83

INITIAL SETUP

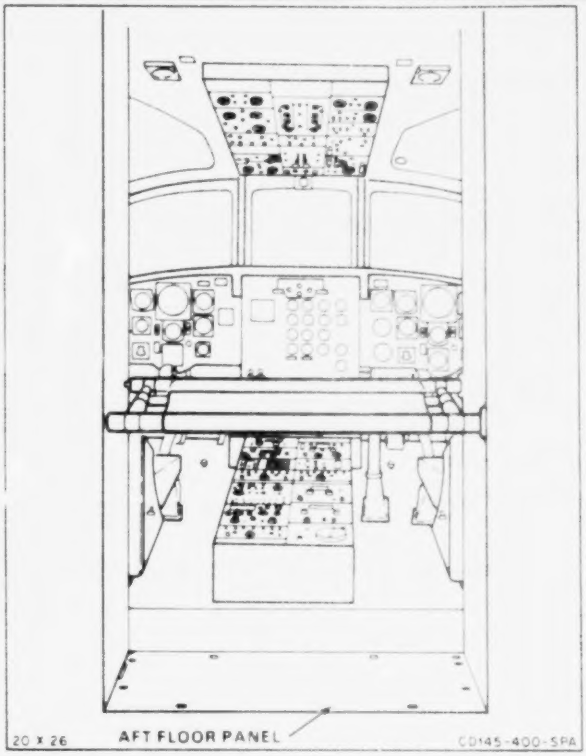
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Troop Commander's Seat Positioned For Use (Task 2-135)

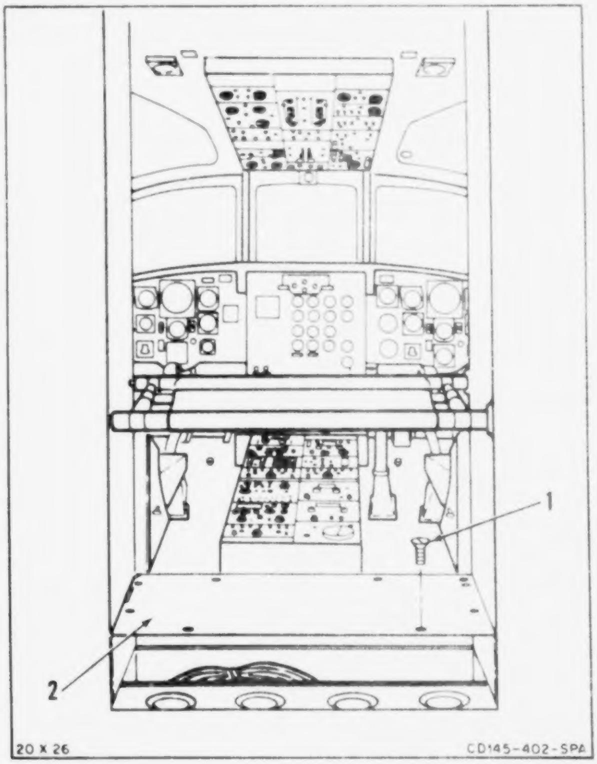

20 x 26
AFT FLOOR PANEL
CD145-400-SPA

---

1. **Remove nine screws (1).**
2. Tilt as needed to clear structure. **Lift out floor panel (2).**

FOLLOW-ON MAINTENANCE:

None


1
2
20 x 26
CD145-402-SPA

END OF TASK

2-84 INSTALL COCKPIT AFT FLOOR PANEL 2-84

INITIAL SETUP

Applicable Configurations:
All

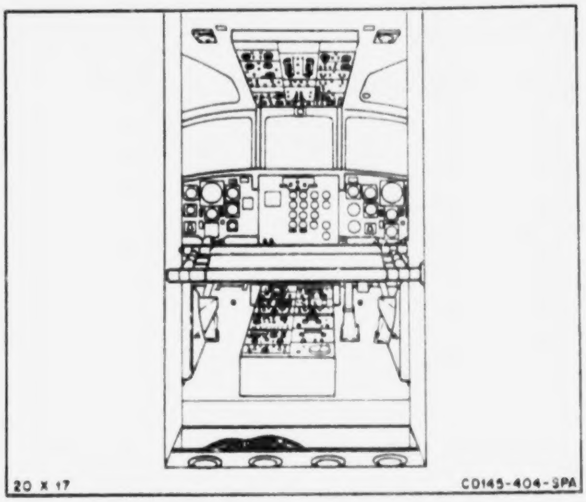
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

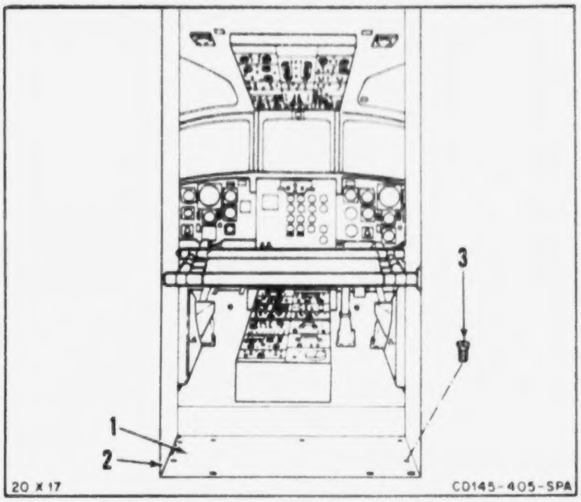
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P

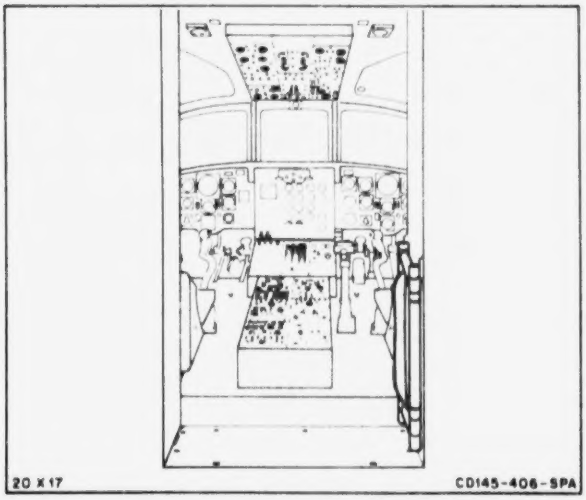
1. **Install floor panel (1)** on structure (2).
2. **Install nine screws (3).**


20 X 17
C0145-404-SPA


1
2
3
20 X 17
C0145-405-SPA

FOLLOW-ON MAINTENANCE:

Stow troop commander's seat
(Task 2-134).


20 X 17
C0145-406-SPA

END OF TASK

2-85 TEST JETTISONABLE DOOR 2-85

INITIAL SETUP

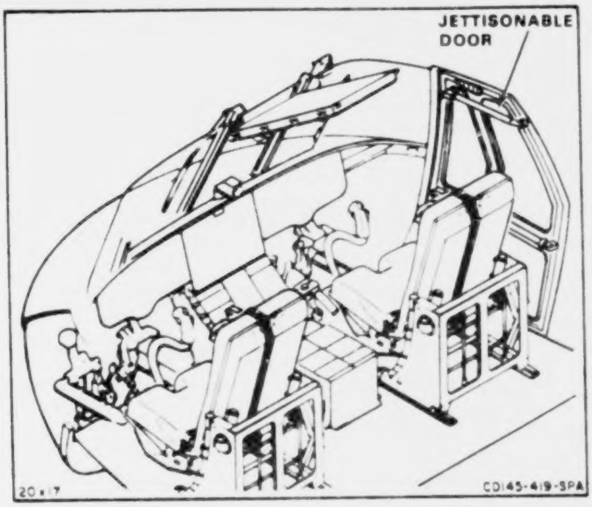
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lockwire (E228)

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

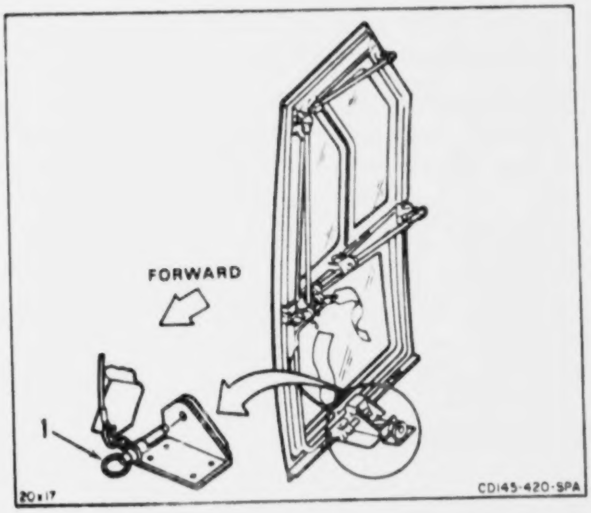
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


JETTISONABLE DOOR
20 x 17
CD145-419-SPA

NOTE

Procedure is the same to test pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.

1. **Remove door security lock (1).**


FORWARD
1
20 x 17
CD145-420-SPA

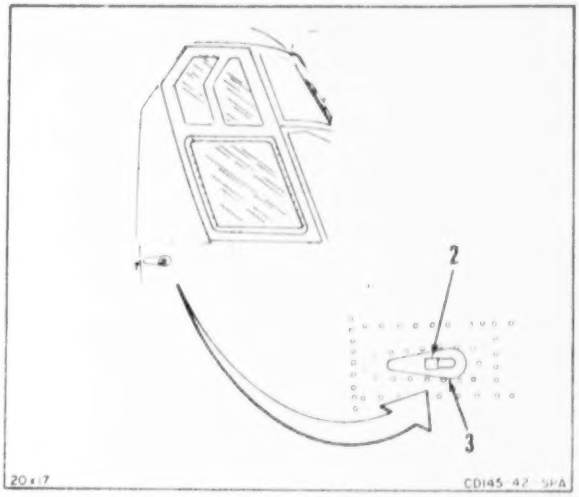
GO TO NEXT PAGE

2-85 TEST JETTISONABLE DOOR (Continued) 2-85

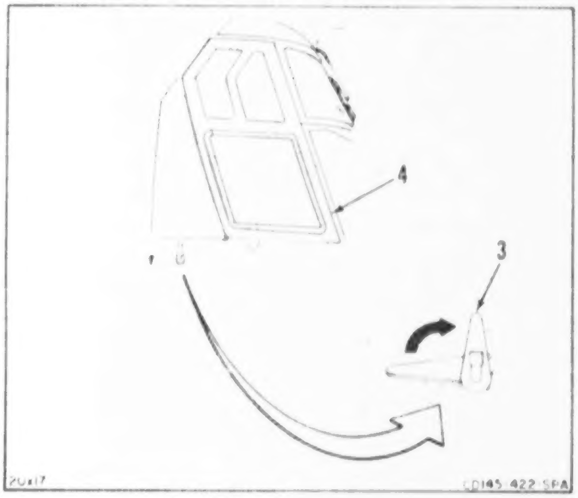
2. **Press PUSH button (2)** from outside helicopter. Handle (3) should spring out. If it does not, pull out handle.

CAUTION

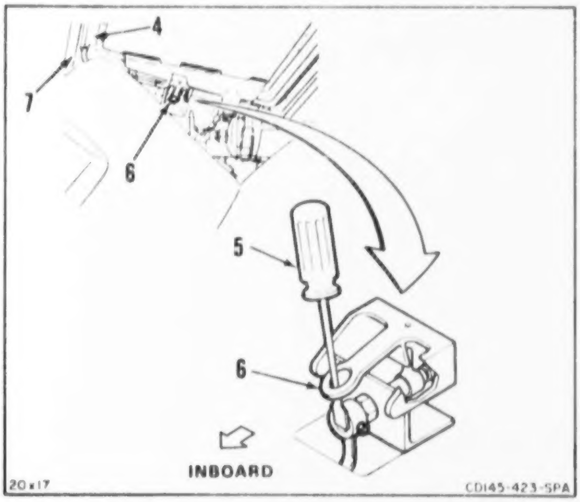
Upper latch plate can be damaged if door is pulled out when lower latch is released. To prevent damage, do not pull out door after lower latch has released.



3. **Turn handle (3) clockwise while holding door (4) to helicopter.** Bottom of door should release. If it does not, do the following:
   a. Remove door (Task 2-86).
   b. Install and adjust door (Task 2-90).
   c. Go to step 1.



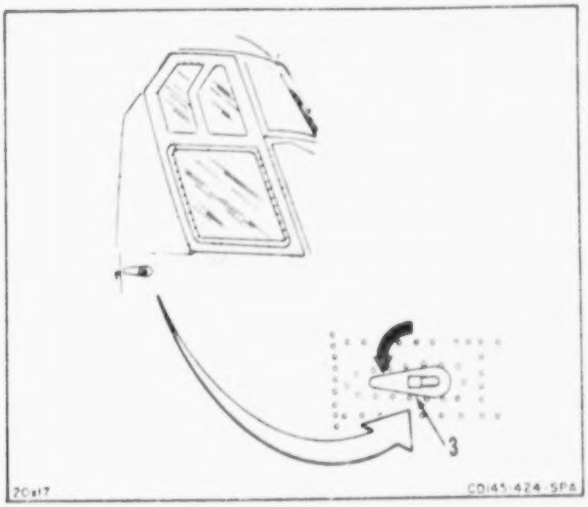
4. **Have helper put screwdriver (5) through hole in lower latch plate extension (6).**
5. **Have helper pull screwdriver handle inboard.** This should pull and hold door (4) against frame (7).



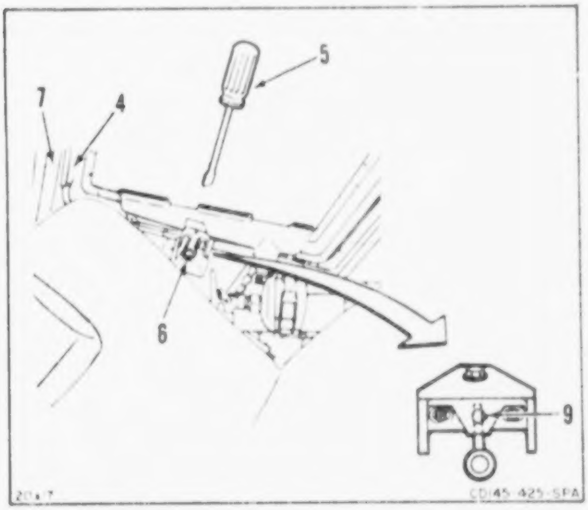
GO TO NEXT PAGE

2-85 TEST JETTISONABLE DOOR (Continued) 2-85

6. **Turn release handle (3) counterclockwise** as far as it will go.
7. **Push in and lock handle (3).**



8. **Have helper remove screwdriver (5)** from latch plate extension (6).
9. **Check that red index mark shows in inspection hole (9).** If it does not, do the following:
    a. Remove door (Task 2-86).
    b. Check door (4) and frame (7) for obstructions. Remove obstructions.
    c. Install and adjust door (Task 2-90).
    d. Go to step 1.



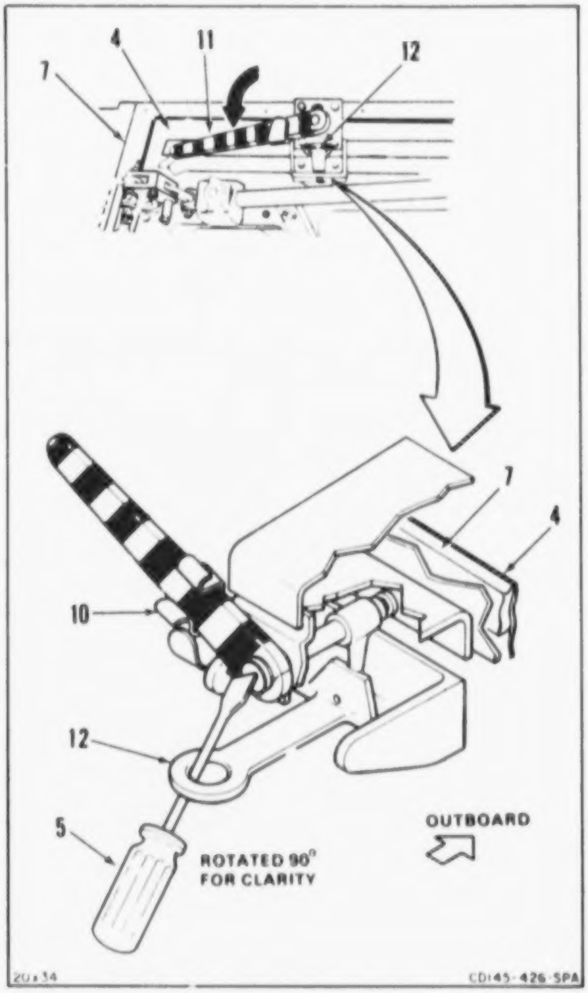
GO TO NEXT PAGE

2-85 TEST JETTISONABLE DOOR (Continued) 2-85

CAUTION

Lower latch plate can be damaged if door is pulled out when upper latch is released. To prevent damage, do not pull out door after upper latch has released.

10. Remove retainer clip (10).
11. **From inside helicopter, turn handle (11) counterclockwise.** Top of door (4) should be released. If it is not, do the following:
    a. Remove door (Task 2-86).
    b. Install and adjust door (Task 2-90).
    c. Go to step 1.
12. **Put screwdriver (5) through hole in upper latch plate extension (12).**
13. **Pull screwdriver (5) inboard.** This should pull and hold door (4) against frame (7).


7
4
11
12
7
4
10
12
5
ROTATED 90°
FOR CLARITY
OUTBOARD
20x34
CD145-426-5PA

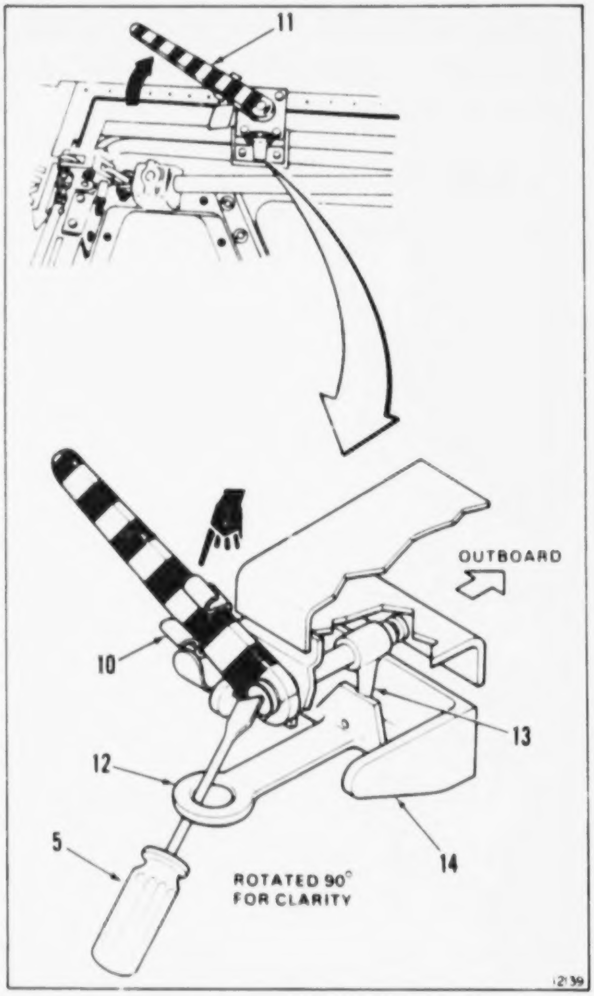
GO TO NEXT PAGE

2-85 TEST JETTISONABLE DOOR (Continued) 2-85

14. **Turn handle (11) clockwise** until latch (13) locks in detent of upper latch plate (14).

15. **Remove screwdriver (5)** from latch plate extension (12).

16. Install retainer clip (10).


11
OUTBOARD
10
13
12
5
14
ROTATED 90°
FOR CLARITY
12139

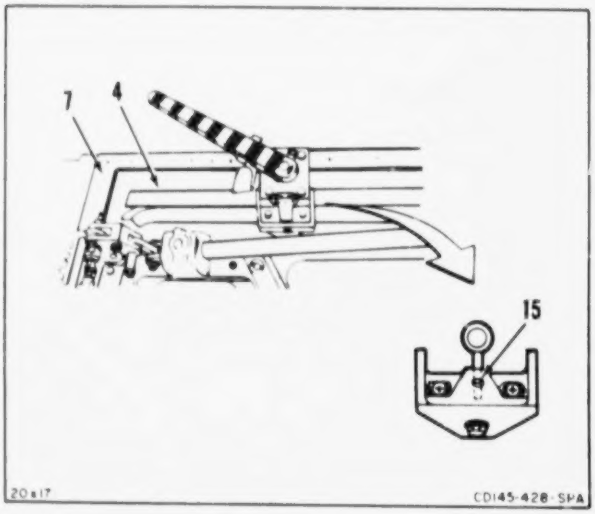
17. **Check that red index mark shows in inspection hole (15).** If it does not, do the following:

    a. Remove door (Task 2-86).

    b. Check door (4) and frame (7) for obstructions. Remove obstructions.

    c. Install and adjust door (Task 2-90).

    d. Go to step 1.

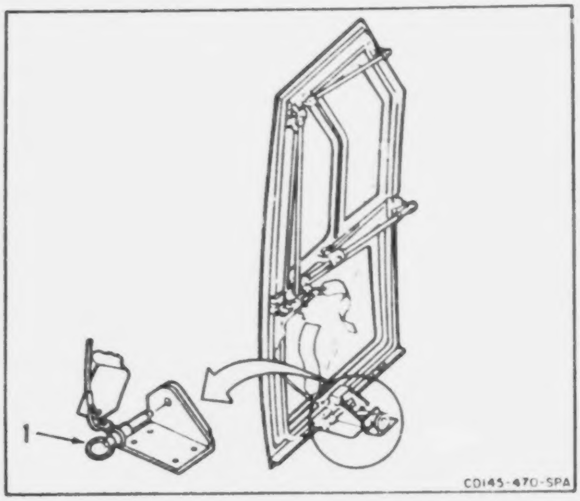

7
4
15
20x17
CD145-428-SPA

GO TO NEXT PAGE

2-85 TEST JETTISONABLE DOOR (Continued) 2-85

18. **Install door security lock (1).**

INSPECT



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-86 REMOVE JETTISONABLE DOOR 2-86

INITIAL SETUP

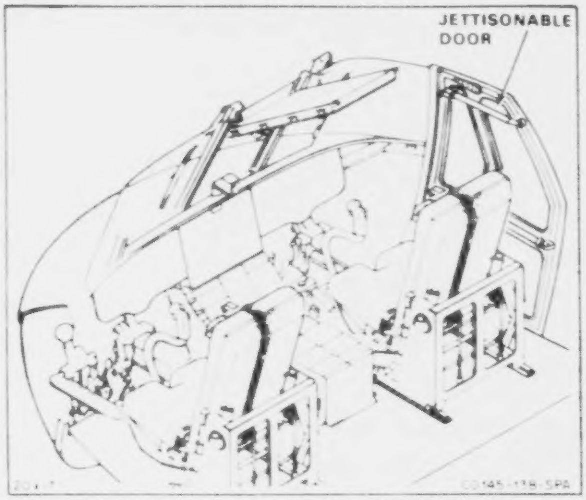
Applicable Configurations:
All

Tools:
Workstand

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

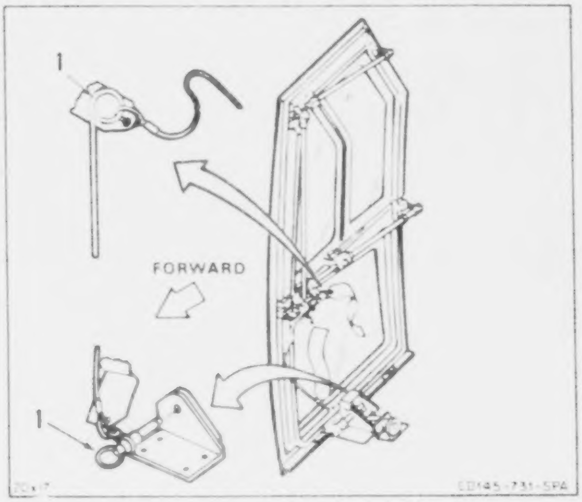
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


JETTISONABLE DOOR
20x17
CD145-138-SPA

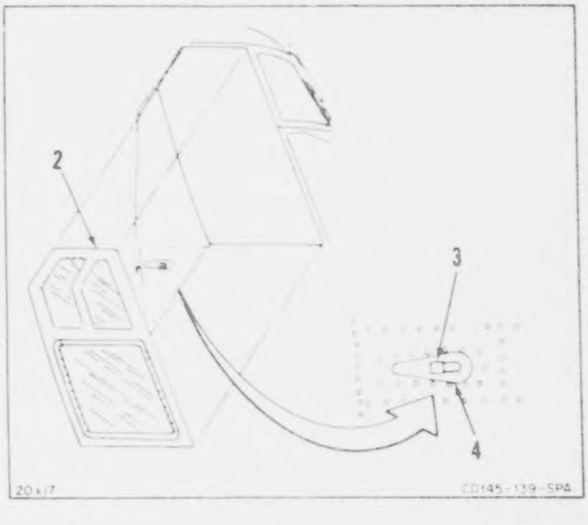
NOTE

Procedure is same for removing pilot's and copilot's jettisonable door. Pilot's door is shown here.

1. From inside helicopter, **remove jettisonable door** floor and window **security lock pins (1).**


1
FORWARD
1
20x17
CD145-731-SPA

2. From outside of helicopter, **hold door (2)** at lower frame to control outward and downward movement.
3. Push in outside jettison handle release button (3). **Turn handle (4)** until door (2) unlatches.
4. Remove door (2) with aid of helper.


2
3
4
20x17
CD145-139-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-87 CLEAN JETTISONABLE DOOR WINDOW CONNECTING LINKS 2-87

INITIAL SETUP

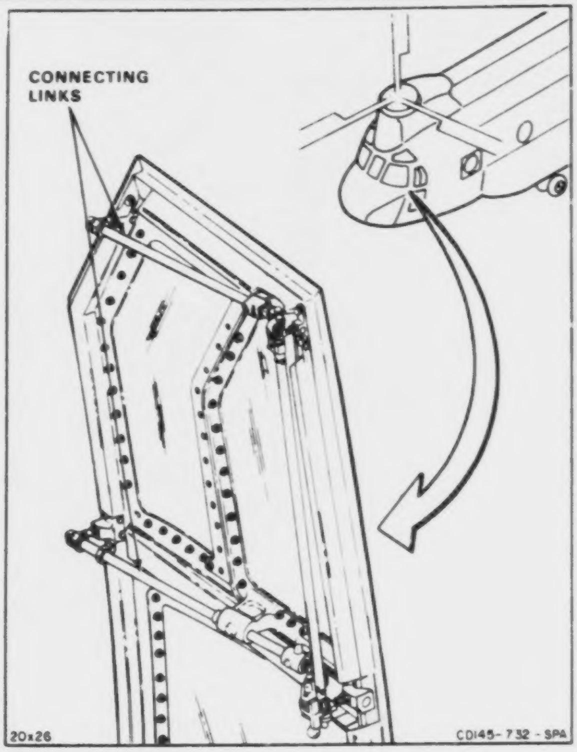
Applicable Configurations:
All

Tools:
None

Materials:
Cleaning Cloth (E120)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



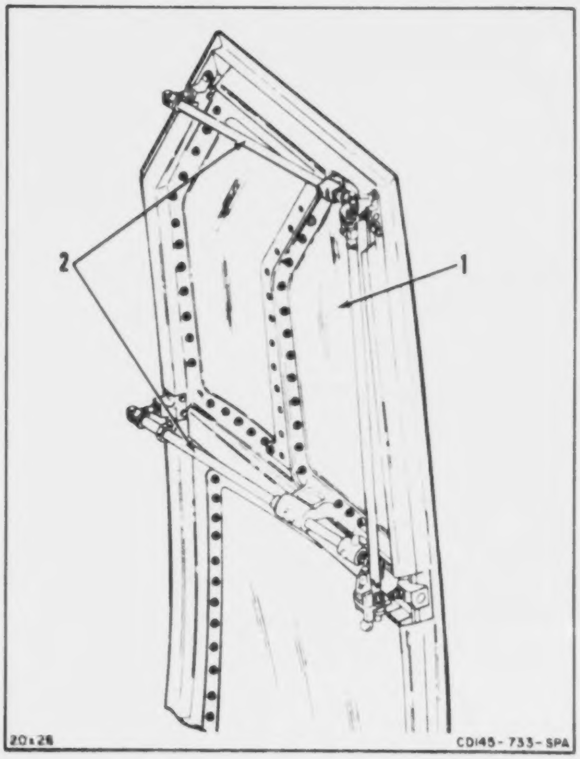
CAUTION

Do not lubricate connecting links. Lubricants hold dirt, causing sliding window to stick.

1. Close sliding window (1).
2. **Clean aft part of both connecting links (2) with cloth (E120).**

NOTE

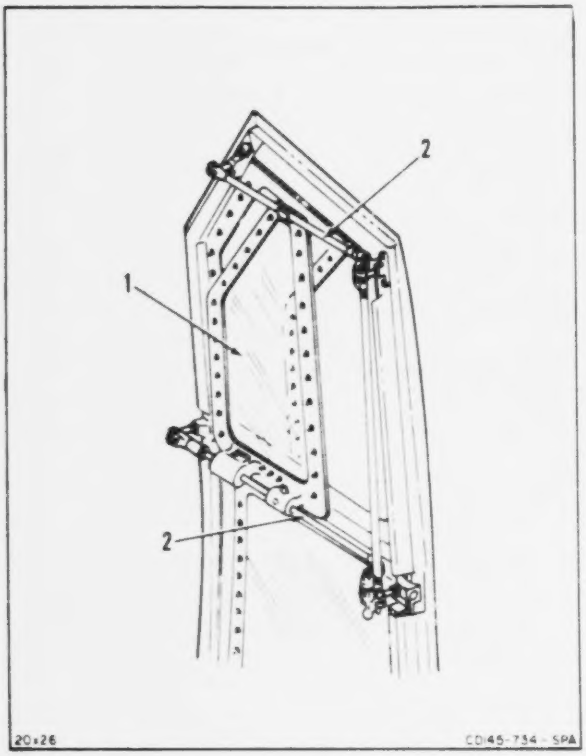
Dampen cloth with clean water if needed to clean connecting links.



GO TO NEXT PAGE

2-87 CLEAN JETTISONABLE DOOR WINDOW CONNECTING LINKS (Continued) 2-87

3. Open sliding window (1).
4. **Clean forward part of both connecting links (2) with cloth (E120).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-88 REPAIR PILOT & COPILOT JETTISONABLE DOOR 2-88

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Cement (E105)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-6
Task 2-11
Task 2-42
Task 2-54
Task 2-311
Task 2-345
TM 55-1500-204-25/1

Equipment Condition:
As Required

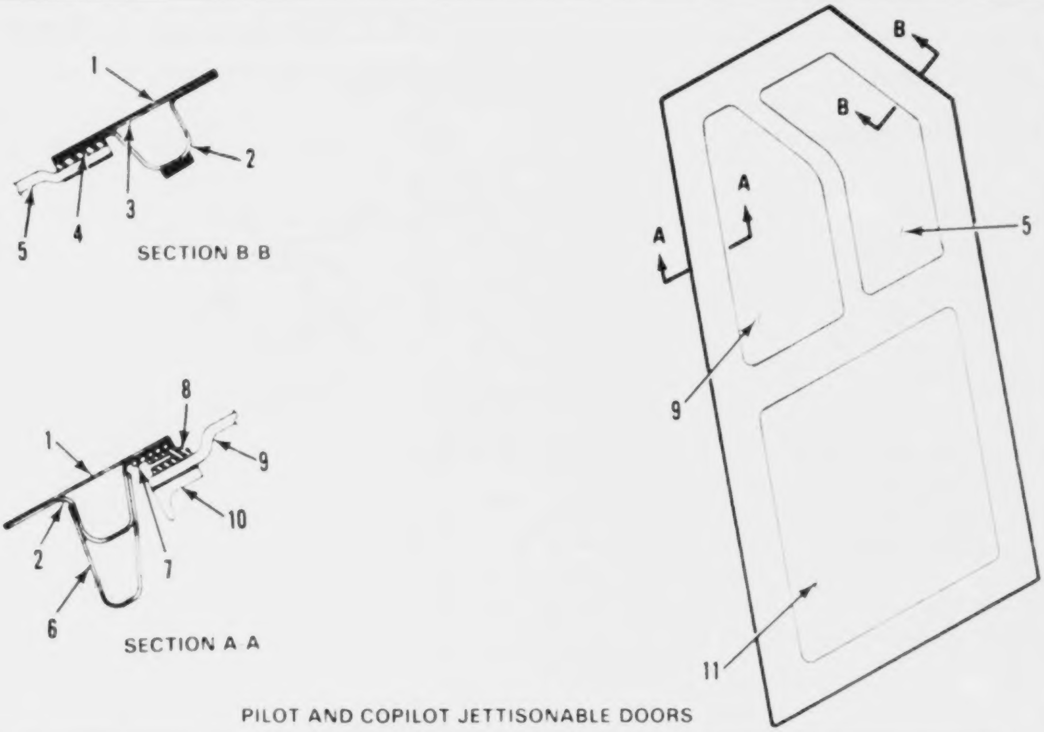
General Safety Instructions:
As Required

---

1. Repair minor damage to formed metal parts which can be fixed easy such as stop-drilling cracks and removing small dents and damaged area (Task 2-6).
2. Repair damage larger than minor by patching if door edges are not affected.
3. Repair complete damage to formed metal parts by insertion (Task 2-6) except damage at door edges.
4. Refer to TM 55-1500-204-25/1 for information on repair of formed parts, spotweld repairs, and acrylic plastic.
5. If required, cement reinforcement strips on the edges of panes. Use cement (E105). Butt joint gaps shall not exceed 0.10-inch, and shall be fitted with cement. (Task 2-311)
6. Extensive damage, such as loss of major portion of door or damage affecting seal requires replacement in whole or in part.
7. Replace damaged seal with new seal (Task 2-311).

GO TO NEXT PAGE

2-88 REPAIR PILOT & COPILOT JETTISONABLE DOOR (Continued) 2-88



PILOT AND COPILOT JETTISONABLE DOORS

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	OUTER SKIN	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	2-11
2	INNER PAN	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE H
3	DOUBLER	0.020 2024-T4 CLAD	NOTE B	NOTE H
4	SEAL	0.125 SYN RUBBER SHEET	NOTE C	NOTE H
5	PANE	0.150 ACRYLIC PLASTIC	NOTE E	NOTE H
6	SUPPORT	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE H
7	SEAL	0.090 SILICONE RUBBER SPONGE	NOTE C	—
8	SEAL	MOLDED SILICONE RUBBER	NOTE D	—
9	PANE	0.150 ACRYLIC PLASTIC	NOTE E	NOTE H
10	FRAME	ALUMINUM ALLOY CASTING	NOTE F	—
11	PANE	0.187 ACRYLIC PLASTIC	NOTE E	NOTE H

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. DAMAGE TO DOUBLERS NECESSITATES REPLACEMENT OF DAMAGED PORTION WITH SAME MATERIAL AS ORIGINAL
C. REPLACE WITH NEW SEAL, ORIGINAL
D. REPLACE WITH NEW SEAL, 114SS668-1 OR -2
E. REFER TO TASK 2-42 AND TASK 2-345 FOR REPAIR AND REFINISHING OF PANE ASSEMBLIES. REFER TO TASK 2-54 FOR OPTICAL REQUIREMENTS
F. REPLACE WITH NEW PART, SAME AS ORIGINAL
G. THE LH DOOR IS SHOWN. REPAIR MATERIALS AND REFERENCED REPAIR FIGURES ARE SAME FOR RH DOOR
H. TM 55-2500-204-25/1

2526

Pilot and Copilot Jettisonable Doors Repairs — Cockpit Fuselage Structure

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-89 INSTALL JETTISONABLE DOOR — WITHOUT ADJUSTMENT 2-89

INITIAL SETUP

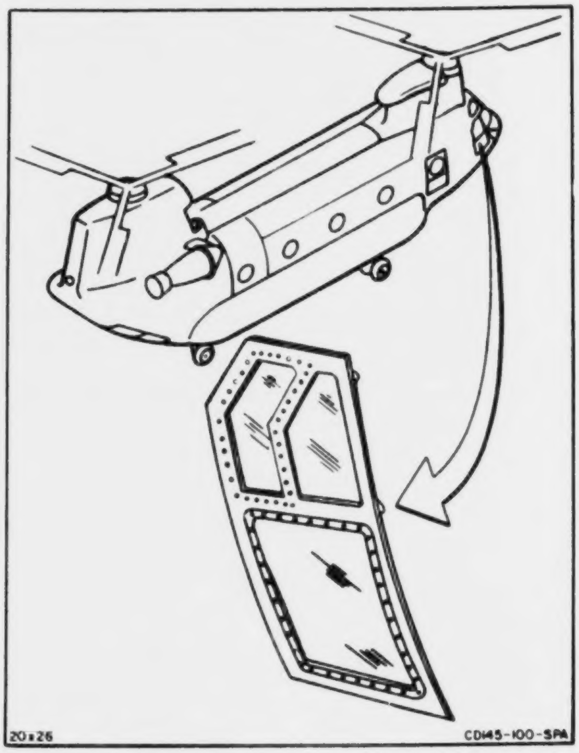
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit
NSN 5180-00-323-4692
Workstand

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

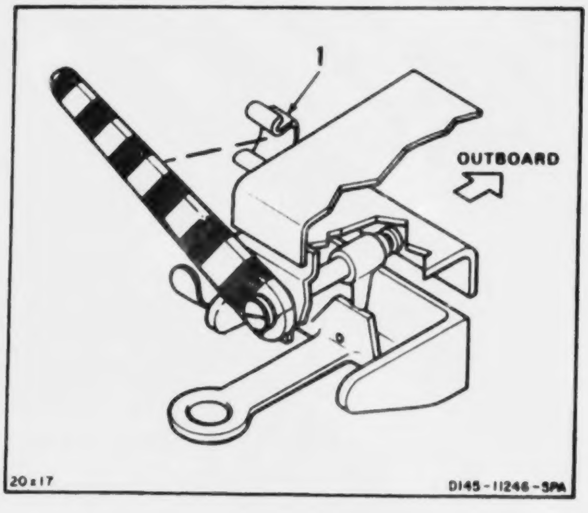
References:
TM 55-1520-240-23P



NOTE

- This procedure is only for installing jettisonable door on same helicopter it was removed from. If door was removed for repair or replacement of parts, it requires adjustment (Task 2-90).
- Procedure is same for installing pilot's or copilot's jettisonable door. Pilot's door is shown here.

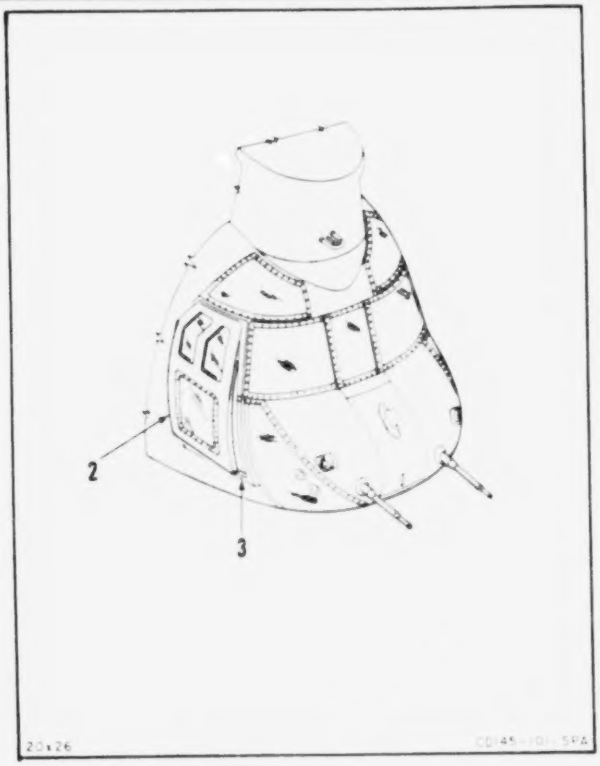
1. Remove retainer clip (1).



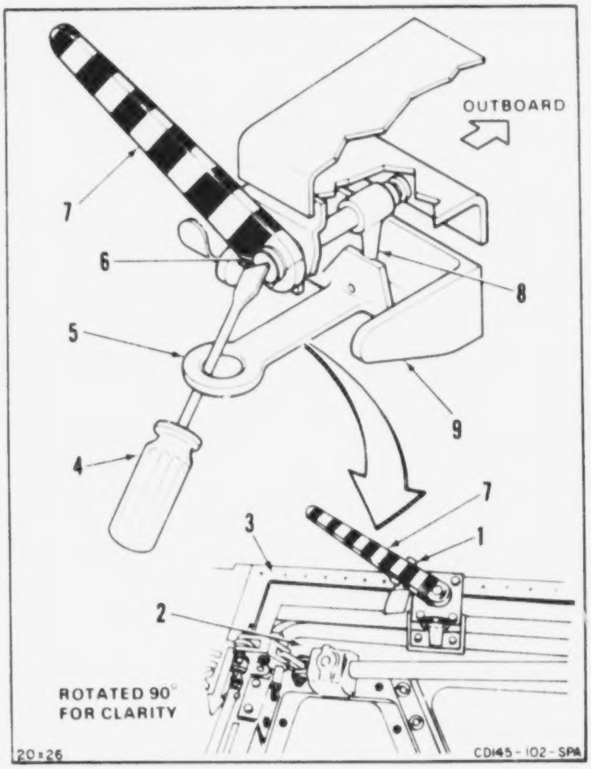
GO TO NEXT PAGE

2-89 INSTALL JETTISONABLE DOOR — WITHOUT ADJUSTMENT (Continued) 2-89

2. **Position top of jettisonable door (2) in door frame** (3) with aid of helper


2
3
20x26
CD145-101-SPA

3. Have helper hold door (2) in place from outside helicopter. Hold bottom of door 3 inches away from bottom frame.
4. Put screwdriver (4) through hole in upper latch plate extension (5) from bottom. **Pull screwdriver handle inboard,** pressing screwdriver **against latch shaft (6)** to pull door (2) against frame (3).
5. Hold door (2) against frame (3) with screwdriver (4). **Turn** upper inside release **handle** (7) **until latch** (8) **locks** in detent of upper latch plate (9).
6. Remove screwdriver (4).
7. Install retainer clip (1).

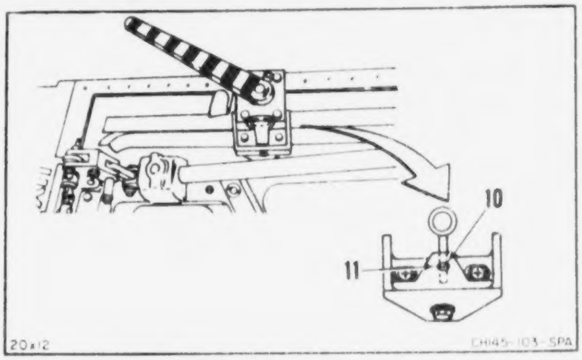

OUTBOARD
7
6
8
5
9
4
7
3
1
2
ROTATED 90° FOR CLARITY
20x26
CD145-102-SPA

GO TO NEXT PAGE

2-89 INSTALL JETTISONABLE DOOR — WITHOUT ADJUSTMENT (Continued) 2-89

8. **Check** that **red index line** (10) shows through inspection hole (11). If it does, go to step 10.

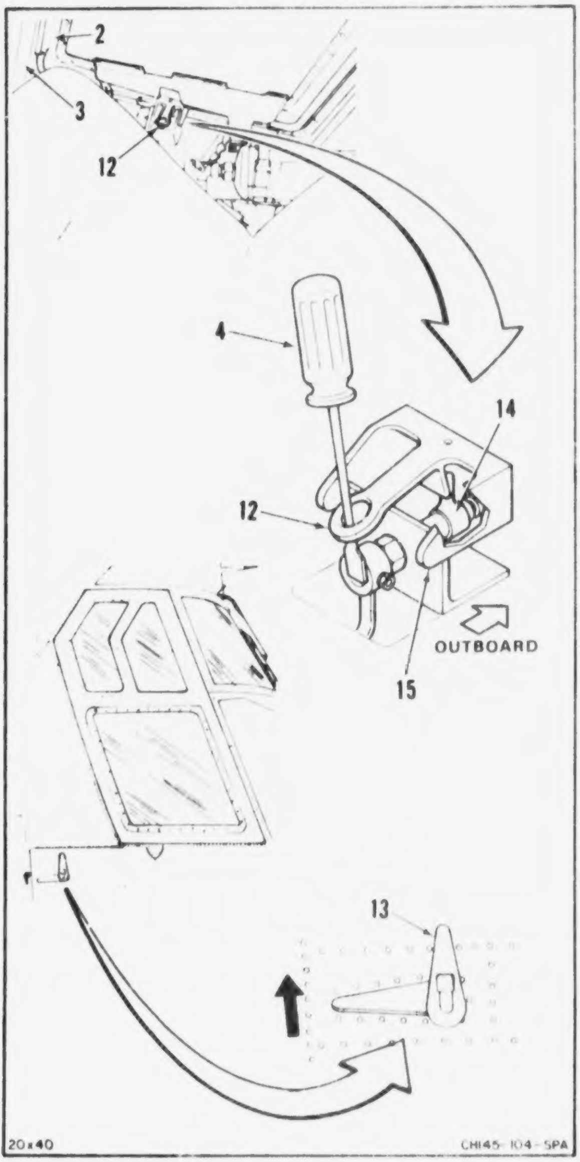
9. If red index line (10) does not show through inspection hole, do steps 3. thru 8. again. If index line still does not show, remove door. Check door, door frame, and upper latch for obstructions. Repeat steps 3. thru 8.



10. Put screwdriver (4) through hole in lower latch plate extension (12) from top. Pull screwdriver handle inboard to pull door (2) against frame (3).

11. Hold door (2) against frame (3) with screwdriver. Have helper outside helicopter turn door release handle (13) until latch (14) locks in detent of lower latch plate (15).

12. Remove screwdriver (4).



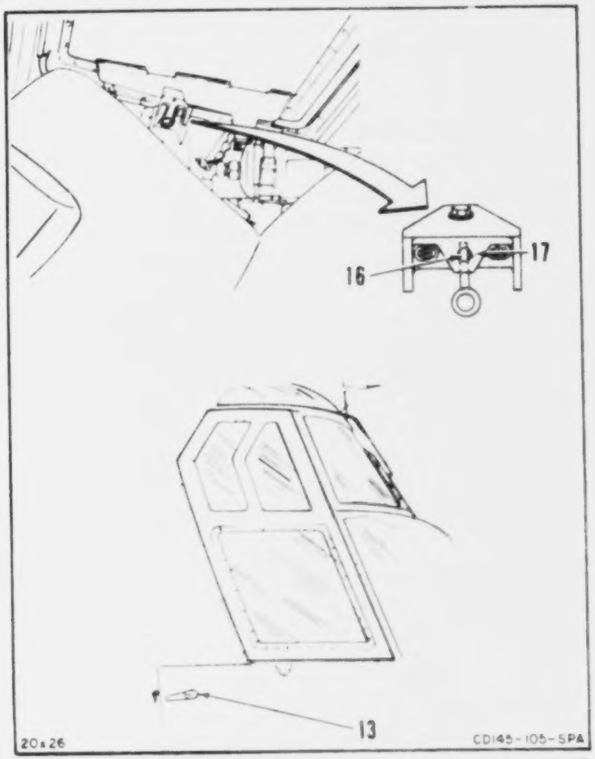
GO TO NEXT PAGE

2-89 INSTALL JETTISONABLE DOOR — WITHOUT ADJUSTMENT (Continued) 2-89

13. **Check** that **red index line (16)** shows through inspection hole (17). If it does, go to step 15.

14. If red index line (16) does not show through inspection hole (17), do steps 10. thru 12. again. If index line still does not show, remove door. Check door, door frame, and lower latch for obstructions. Repeat steps 10 thru 12.

15. **Push in and lock lower door release handle** (13).

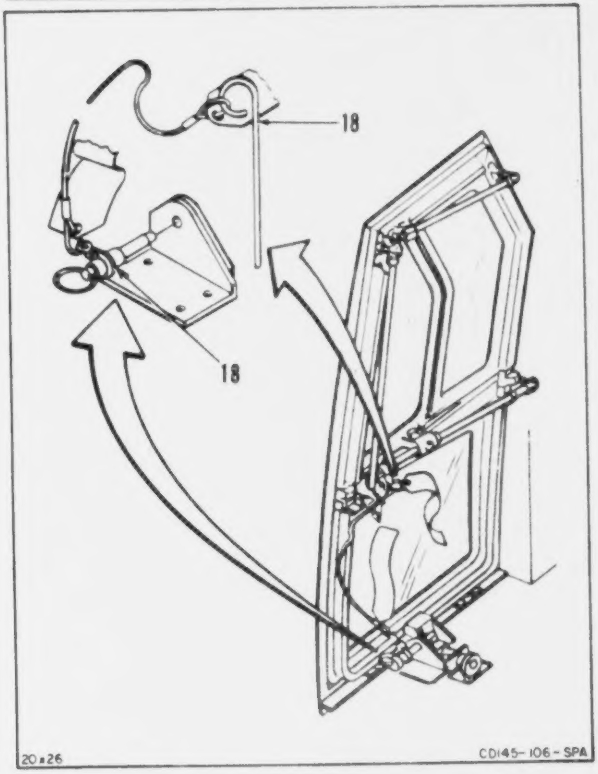


16. **Install** jettisonable door floor and window **security lock pins** (18).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-90 INSTALL AND ADJUST JETTISONABLE DOOR 2-90

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Torque Wrench 5 to 50 Inch-Pounds
Workstand

Materials:
Grease (E190)

Parts:
Cotter Pins
Washers
Rivets
Shim, 1.5 Inch x 2.1 Inch x 0.09 Inch Max Thick

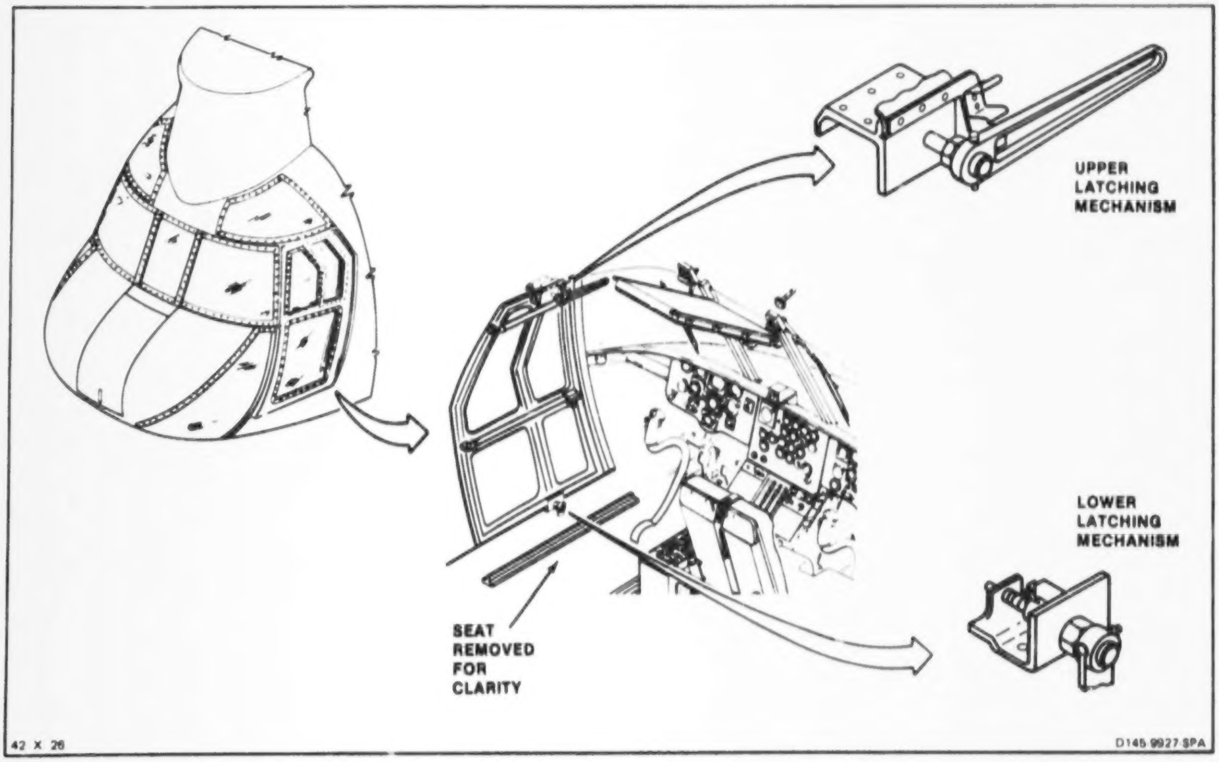
Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

CAUTION

If jettisonable door is not installed and adjusted exactly as directed in this procedure, door could be lost in flight.


UPPER LATCHING MECHANISM
LOWER LATCHING MECHANISM
SEAT REMOVED FOR CLARITY
42 X 26
D145 9927 SPA

GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

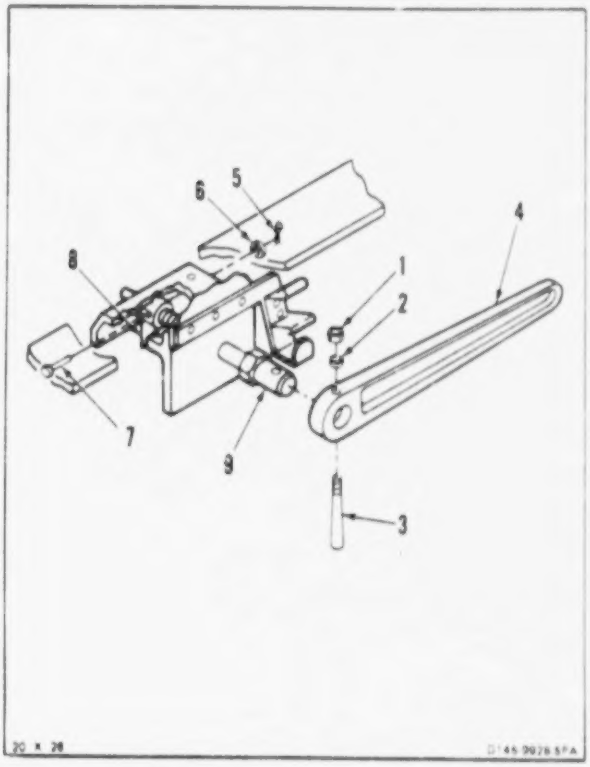
NOTE

This installation is only for installation and adjustment of a jettisonable door that is new or was removed for repair or replacement of parts.

NOTE

Procedure is same to install and adjust pilots' or copilots' jettisonable door. Copilots' door shown here.

1. **Remove nut (1),** washer (2), and **tapered pin (3)** from handle (4).
2. **Remove** cotter pin (5), washer (6) and **pin (7)** from upper latch (8).
3. **Remove handle (4)** from shaft (9).

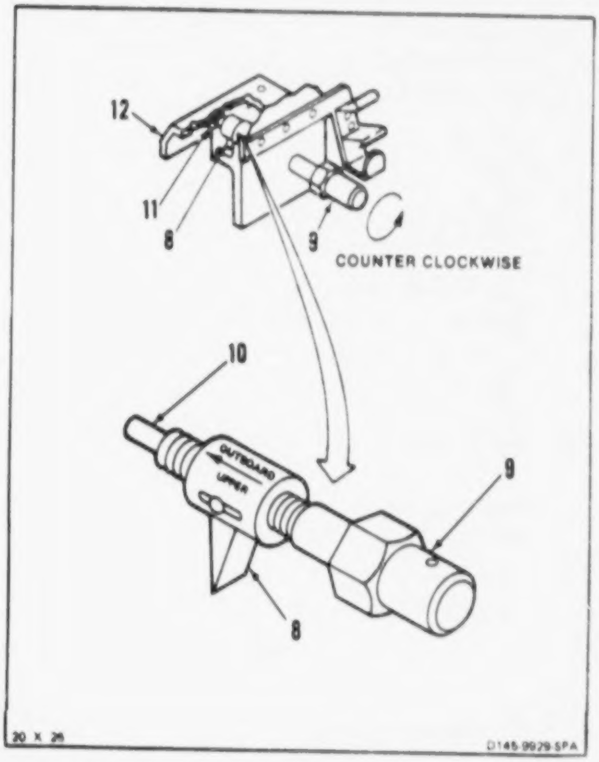


4. Hold latch (8). Turn shaft (9) counterclockwise. Check that latch turns freely on shaft.
5. Lubricate thread on shaft (9). Use grease (E190).

CAUTION

If latch is not installed with arrow pointing outboard, the door will not be properly secured and could be lost in flight.

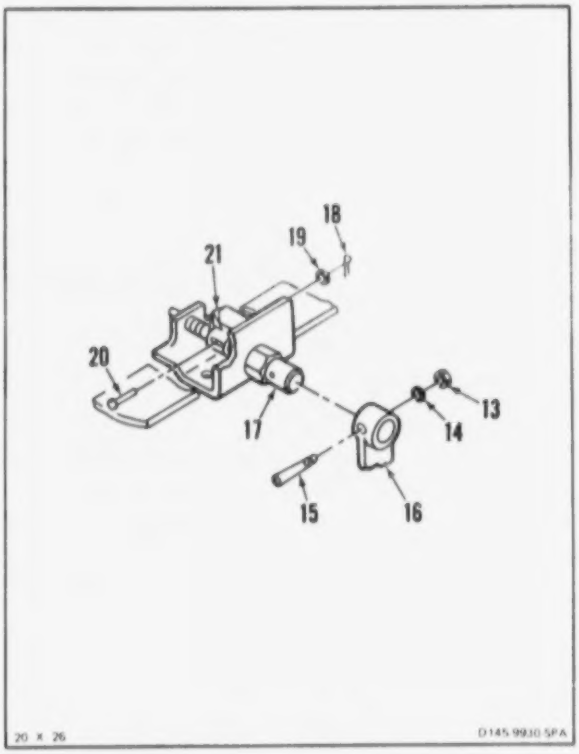
6. **If upper latch (8) was removed in step 4, install it** on shaft (9). **Make sure** raised markings, **(OUTBOARD UPPER) and arrow,** on latch **point outboard.**
7. **Install pilot (10)** of shaft (9) **in outer bushing (11)** of support (12).



GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

8. **Remove nut (13),** washer (14) **and tapered pin (15)** from lever (16).
9. **Remove lever (16)** from shaft (17).
10. **Remove** cotter pin (18), washer (19) and **pin (20)** from lower latch (21).

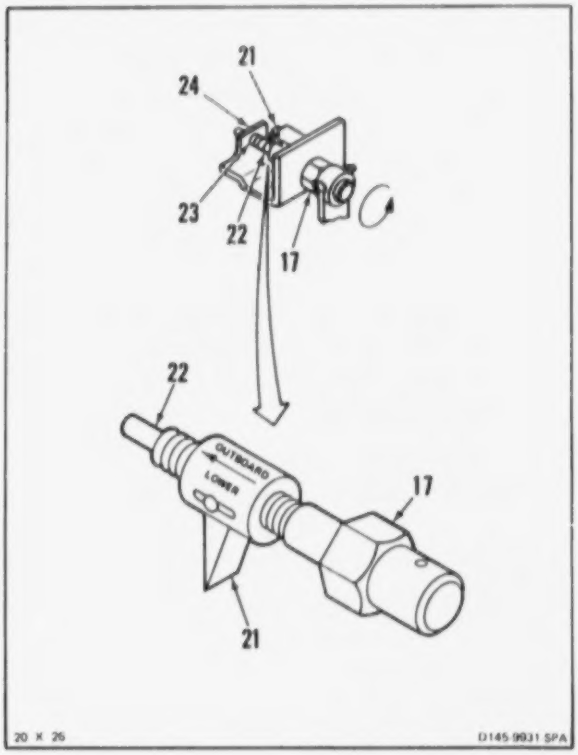

18
19
21
20
17
13
14
15
16
20 X 26
D145 9930 SPA

11. Hold lower latch (21). Turn shaft (17) counterclockwise. Check that latch turns freely on shaft.
12. Lubricate thread on shaft (17). Use grease (E190).

CAUTION

If latch is not installed with arrow pointing outboard, the door will not be properly secured and could be lost in flight.

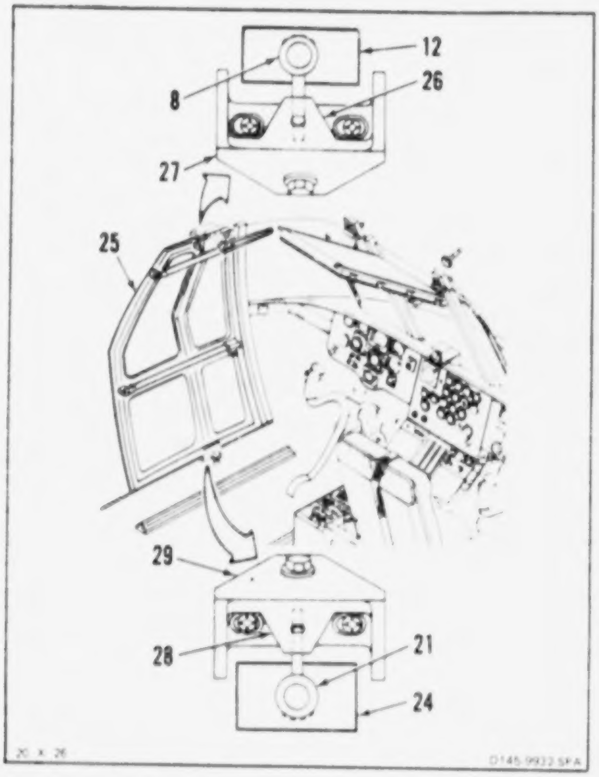
13. **If lower latch (21) was removed in step 11, install it** on shaft (17). **Make sure** raised markings **(OUTBOARD LOWER) and arrow,** on latch **point outboard.**
14. **Install pilot (22) of shaft (17)** in outer bushing (23) of support (24).


21
24
23
22
17
22
OUTBOARD
LOWER
17
21
20 X 26
D145 9931 SPA

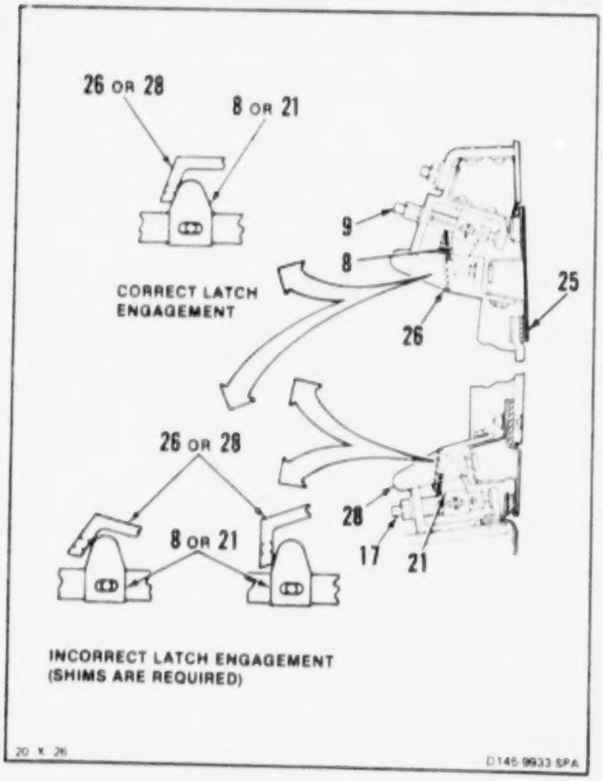
GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

15. **Have helper, working from outside, position jettisonable door (25)** in door opening.
16. **Working in cockpit, rotate upper latch (8) until it engages detent (26)** of upper latch plate (27).
17. **Have helper push inward on lower part** of jettisonable door (25).
18. **Rotate lower latch (21) until it engages detent (28)** of lower latch plate (29).
19. Have helper adjust door (25) vertically and horizontally in door opening until there is equal clearance between supports (12 and 24) and latch plates (27 and 29).


12
26
8
27
25
29
28
21
24
20 X 26
D145-9932 SPA

20. **Check that latches (8 and 21) engage detents (26 and 28) as shown.**
21. **If latches (8 or 21) do not engage properly** with detents (26 or 28), **install washers under latch plates (27 or 29).**
22. Turn upper and lower shafts (9 and 17) clockwise until door (25) is held in position. Do not tighten shafts.


26 OR 28
8 OR 21
9
8
CORRECT LATCH ENGAGEMENT
25
26
26 OR 28
8 OR 21
28
17
21
INCORRECT LATCH ENGAGEMENT (SHIMS ARE REQUIRED)
20 X 26
D145-9933 SPA

GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

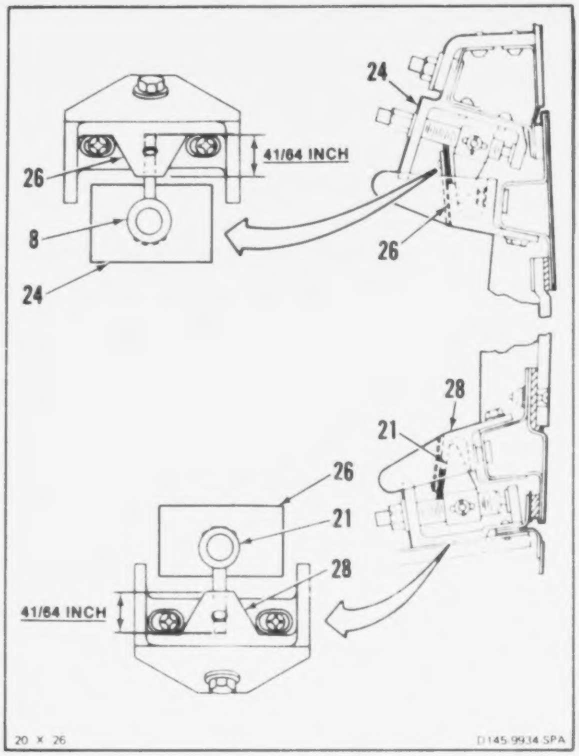
23. **Check that latches (8 and 21) engage detents (26 and 28) a minimum of 41/64 inch.**

24. If latch engagement is not a minimum of 41/64 inch, install a shim under support (24 or 26).

25. **Check that red index lines on latches (8 and 21) are visible through inspection holes** in detents (26 and 28).

INSPECT

26. **Check that ends of latches (8 and 21) are not resting in inspection holes in detents (26 and 28).**


24
41/64 INCH
26
8
24
26
28
21
26
21
28
41/64 INCH
20 × 26
D145-9934-SPA

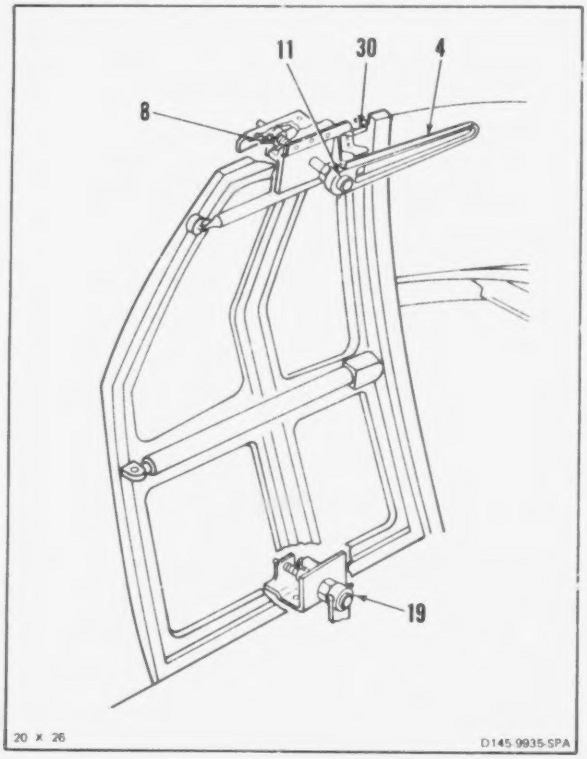
27. **Torque shafts (11 and 19) to 20 inch-pounds.**

28. **Position handle (4)** on shaft (11) and **in retainer (30).**

NOTE

A maximum torque of 25 inch-pounds may be applied when aligning holes in handle, shaft and latch.

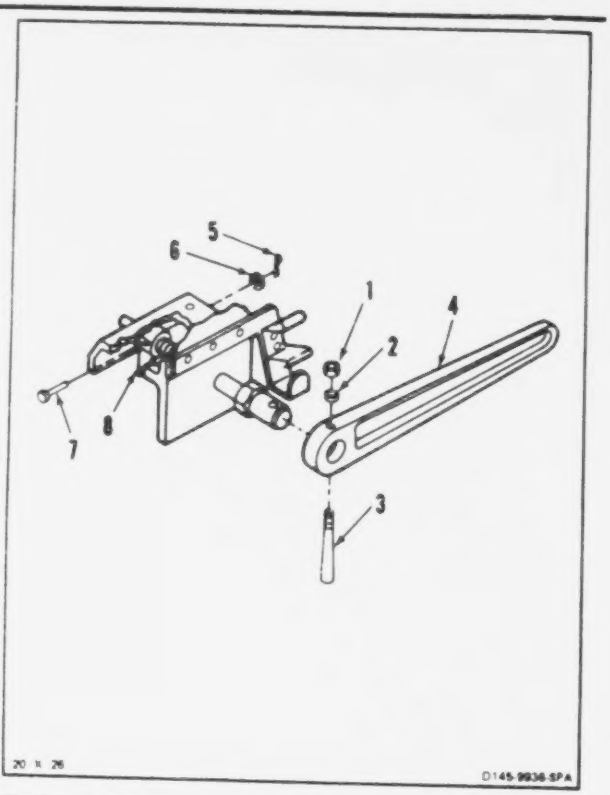
29. **Hold handle (4)** and **turn shaft (11) clockwise until** holes in handle (4), shaft (11) and upper latch (8) align.


11
30
4
8
19
20 × 26
D145-9935-SPA

GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

30. **Install tapered pin (3),** washer (2) and nut (1) in handle (4).
31. **Install pin (7),** washer (6), and cotter pin (5) in upper latch (8).

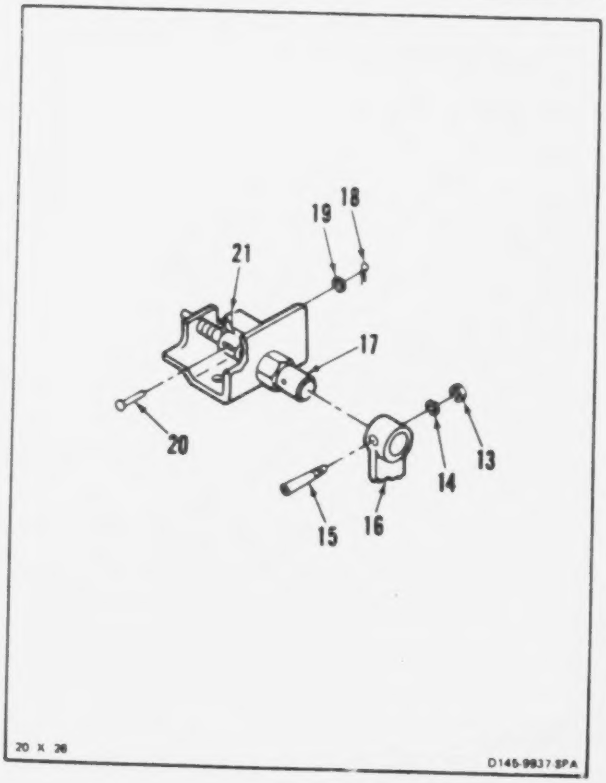

5
6
1
4
2
8
7
3
20 x 26
D145-9836-SPA

32. **Position lever (16) on shaft (17).**

NOTE

A maximum torque of 25 inch-pounds may be applied when aligning holes in handle, shaft and latch.

33. **Hold lever (16)** and **turn shaft (17) clockwise until holes in** lever, shaft and lower latch (21) **align.**
34. **Install tapered pin (15),** washer (14), and nut (13) in lever (16).
35. **Install pin (20),** washer (19), and cotter pin (18) in lower latch (21).

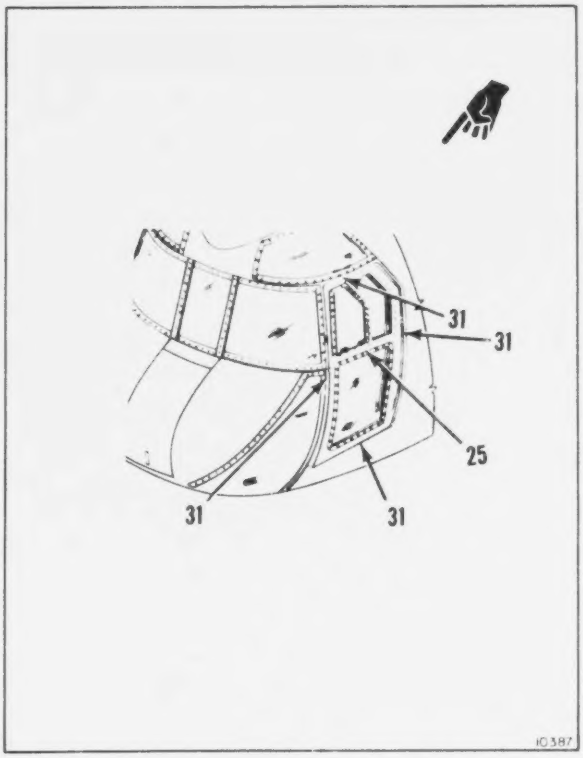

18
19
21
17
20
13
14
15
16
20 x 26
D145-9837-SPA

GO TO NEXT PAGE

2-90 INSTALL AND ADJUST JETTISONABLE DOOR (Continued) 2-90

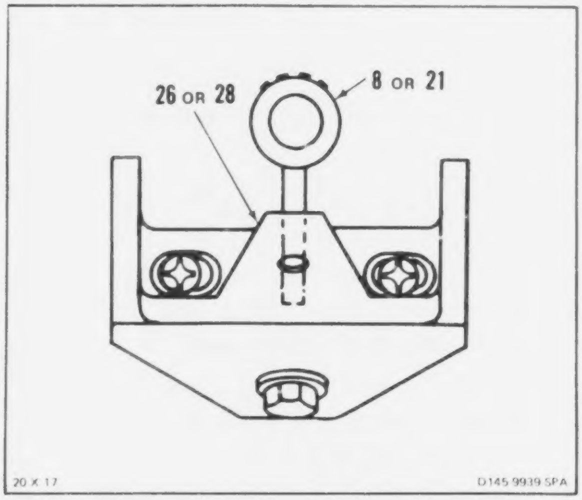
36. **Make sure door (25) fits within the recessed opening (31). Door should compress the seal evenly all the way around the opening.**

INSPECT


31
31
25
31
31
10387

37. **Make sure that latches (8 and 21) are positioned in detents (26 and 28) and red index lines are visible through inspection holes.**

INSPECT


26 OR 28
8 OR 21
20 X 17
D145 9939 SPA

FOLLOW-ON MAINTENANCE:

Test jettisonable door (Task 2-85).

END OF TASK

2-91 REMOVE JETTISONABLE DOOR CONNECTING LINKS 2-91

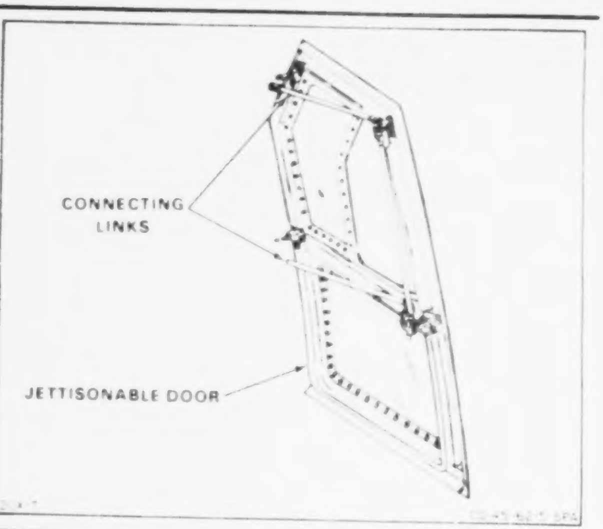
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

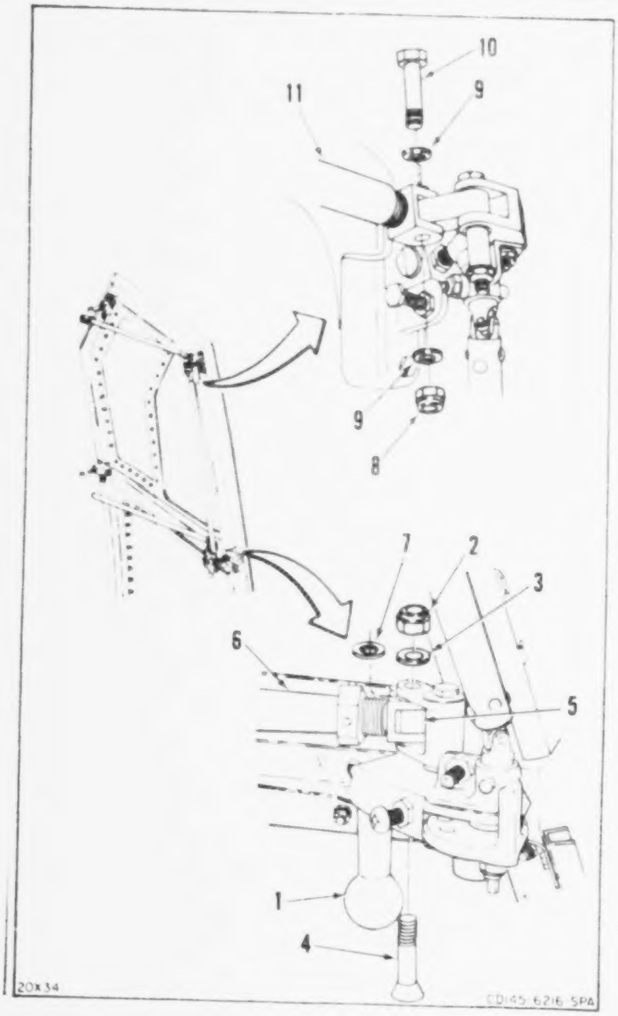
Equipment Condition:
Off Helicopter Task
Jettisonable Door Sliding Window Removed (Task 2-93)


CONNECTING LINKS
JETTISONABLE DOOR
CD145-6215-5PA

NOTE

Procedure is same to remove connecting links on pilot's or copilot's jettisonable door is same. Removal of connecting links on copilot's door is shown here.

1. Set window lock handle (1) to lock position.
2. **Remove** nut (2), washer (3), **bolt (4), and bushing (5).**
3. **Remove lower connecting link (6) and washer (7).**
4. **Remove** nut (8), two washers (9), and **bolt (10).**
5. **Remove upper connecting link (11).**


10
11
9
9
8
7
2
3
6
5
1
4
20x34
CD145-6216-5PA

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-92 INSTALL JETTISONABLE DOOR CONNECTING LINKS 2-92

INITIAL SETUP

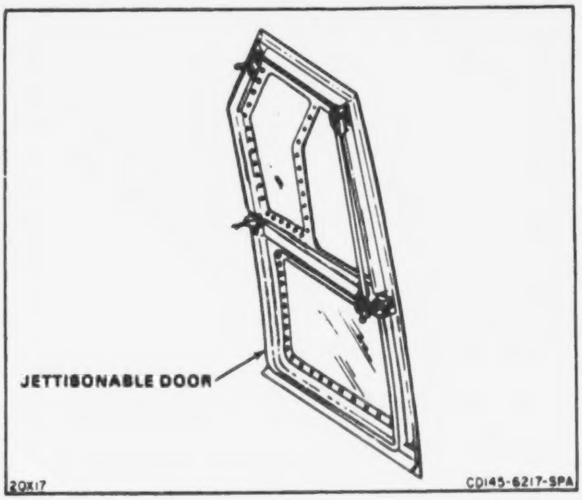
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

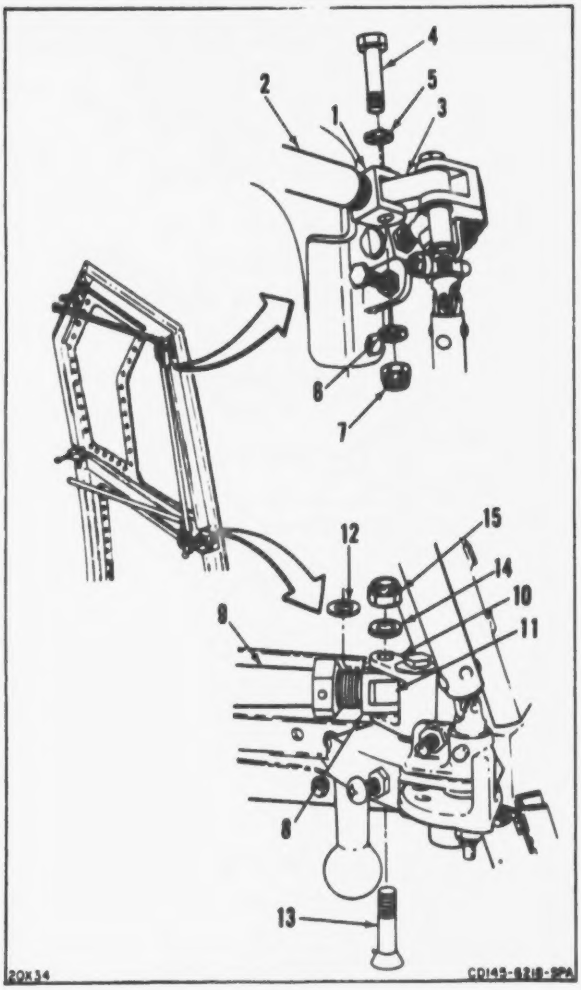
References:
TM 55-1520-240-23P



NOTE

Procedure is same to install connecting links on pilot's and copilot's jettisonable door. Installation of connecting links on copilot's door is shown here.

1. **Position clevis (1) of upper connecting link (2)** on link (3). Align holes in clevis (1) and link (3).
2. **Install bolt (4),** washers (5 and 6), and nut (7).
3. **Position clevis (8) of lower connecting link (9)** on link (10). Align holes in clevis (8) and link (10).
4. **Install bushing (11), washer (12), bolt (13),** washer (14), and nut (15).



INSPECT

FOLLOW-ON MAINTENANCE:

Install jettisonable door sliding window (Task 2-97).

Adjust jettisonable door sliding window (Task 2-93).

END OF TASK

2-93 REMOVE JETTISONABLE DOOR SLIDING WINDOW 2-93

INITIAL SETUP

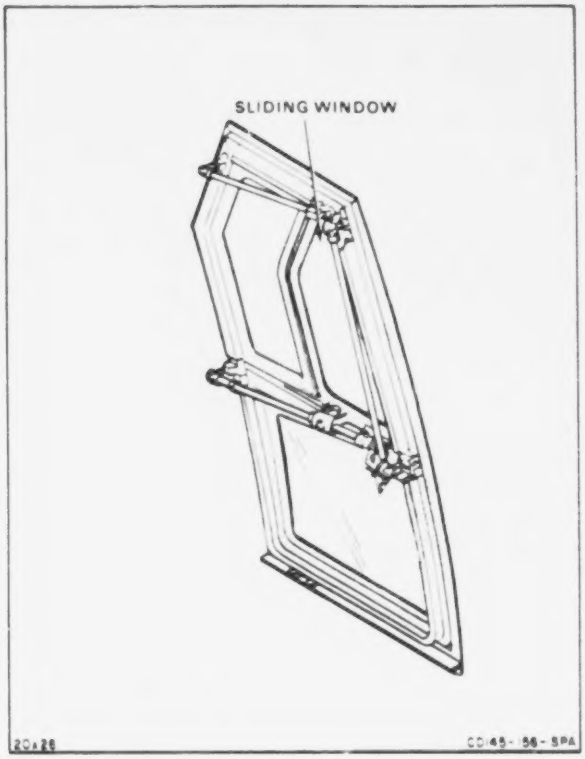
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

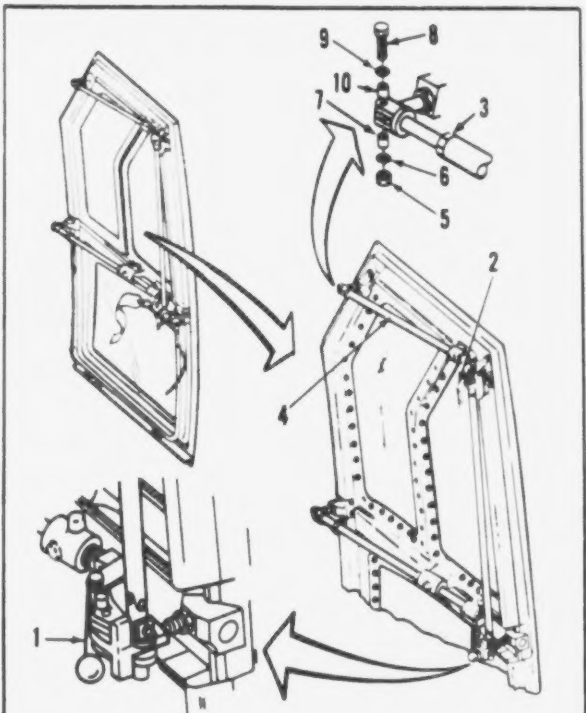
Equipment Condition:
Off Helicopter Task


SLIDING WINDOW
20x26
CD145-156-SPA

NOTE

Procedure is same to remove pilot's or copilot's jettisonable door sliding window. Copilot's sliding window is shown here.

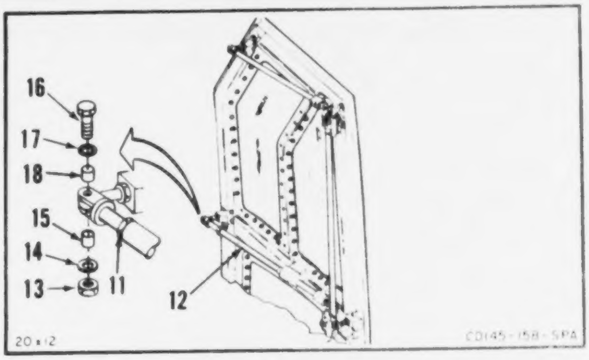
1. **Set handle (1) below sliding window (2), to unlocked position.**
2. Loosen nut (3).
3. **Disconnect connecting link (4):**
   a. Remove nut (5), washer (6), and bushing (7).
   b. Remove bolt (8), washer (9), and bushing (10).


9
8
10
7
3
6
5
2
4
1
20x26
CD145-157-SPA

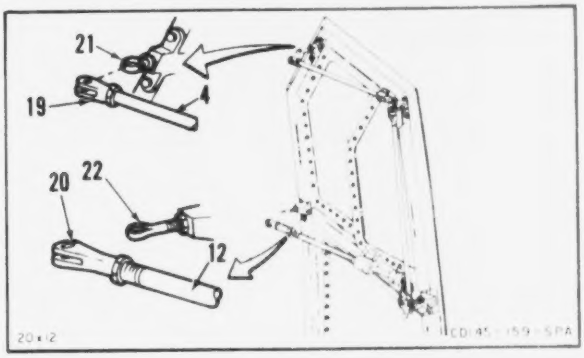
GO TO NEXT PAGE

2-93 REMOVE JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-93

4. Loosen nut (11).
5. Remove connecting link (12):
   a. Remove nut (13), washer (14), and bushing (15).
   b. Remove bolt (16), washer (17), and bushing (18).


16
17
18
15
14
13
11
12
20x12
CD145-158-SPA

6. **Pull clevises (19 and 20) away from door rod end bearings (21 and 22). Count and record number of turns needed to remove clevises (19 and 20) from links (4 and 12).**

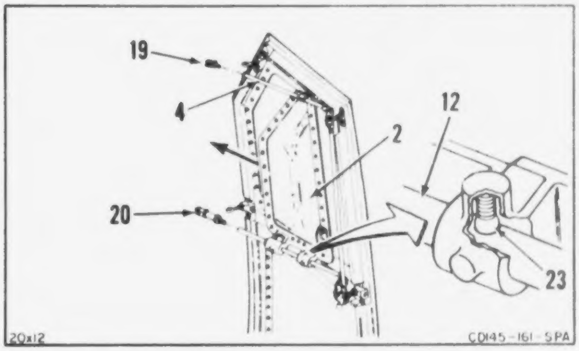

21
19
4
20
22
12
20x12
CD145-159-SPA

7. **Remove clevises (19 and 20).**

CAUTION

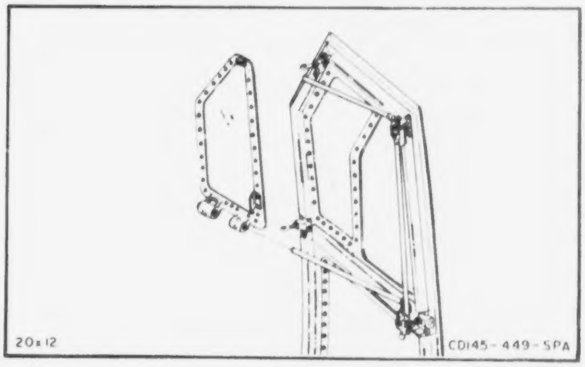
Detent ball can easily be lost. Remove sliding window carefully from links to prevent losing ball from window detent.

8. **Slide window (2) off** links (4 and 12). Make sure detent ball (23) is in place.


19
4
12
2
20
23
20x12
CD145-161-SPA

FOLLOW-ON MAINTENANCE:

None


20x12
CD145-449-SPA

END OF TASK

2-94 REMOVE JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL 2-94

INITIAL SETUP

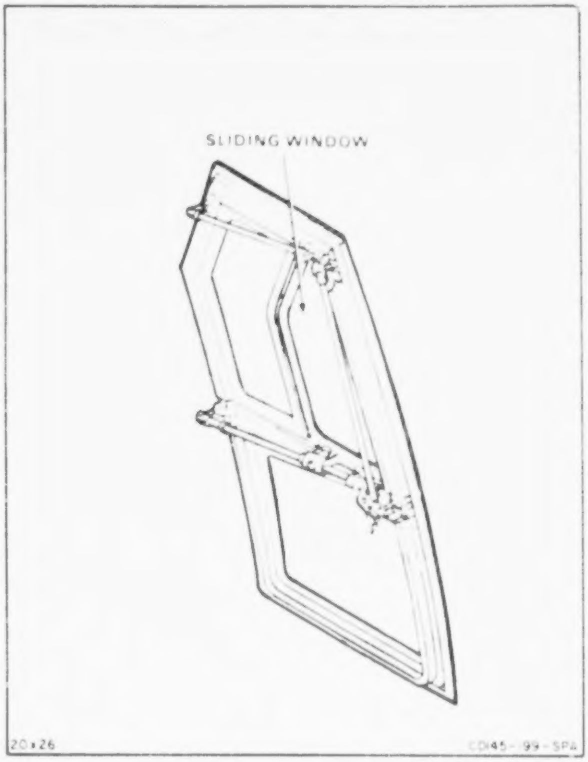
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

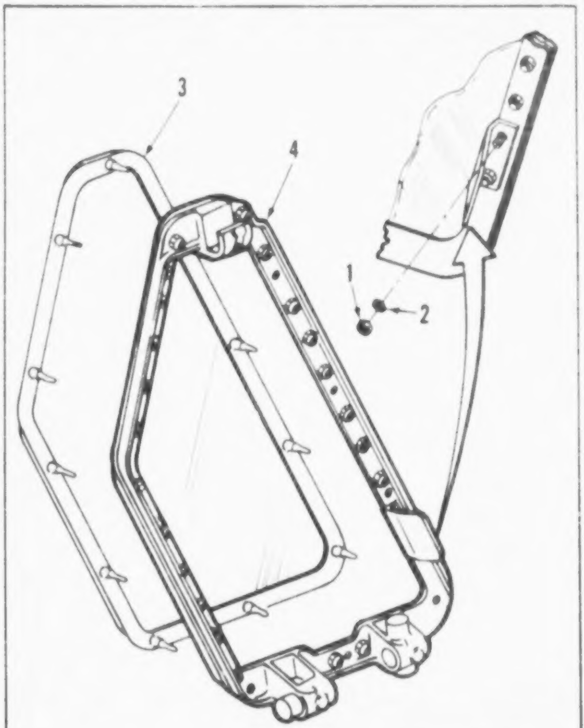
Equipment Condition:
Jettisonable Door Sliding Window Removed (Task 2-93)
Off Helicopter Task



NOTE

Procedure is same for pilot's or copilot's sliding window. Copilot's sliding window is shown here.

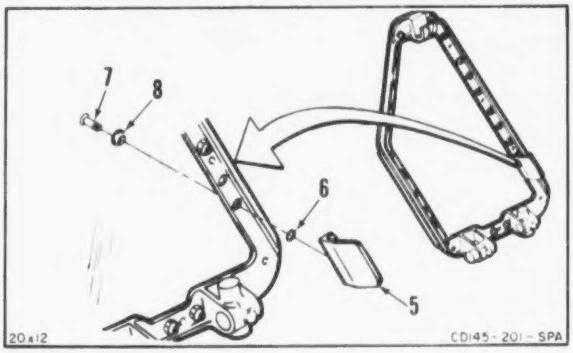
1. **Remove 27 nuts (1) and washers (2).**
2. **Remove seal (3)** from window (4).



GO TO NEXT PAGE

2-94 REMOVE JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL (Continued) 2-94

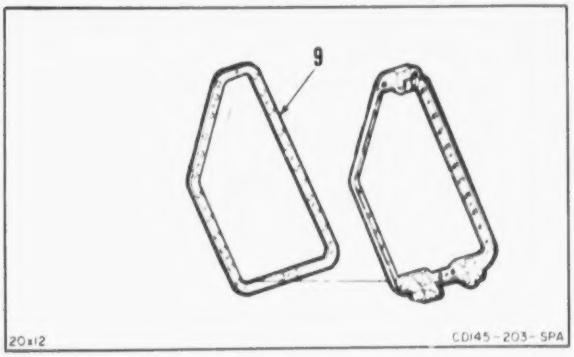
3. **Remove handle (5) and two washers (6).**
4. Remove 27 screws (7) and washers (8).


7
8
6
5
20x12
CD145-201-SPA

5. **Remove window panel (9).**

FOLLOW-ON MAINTENANCE:

None


9
20x12
CD145-203-SPA

END OF TASK

2-95 REPLACE JETTISONABLE DOOR SLIDING WINDOW BUSHINGS 2-95

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Soft Cloth (E128)

Parts:
Bushings

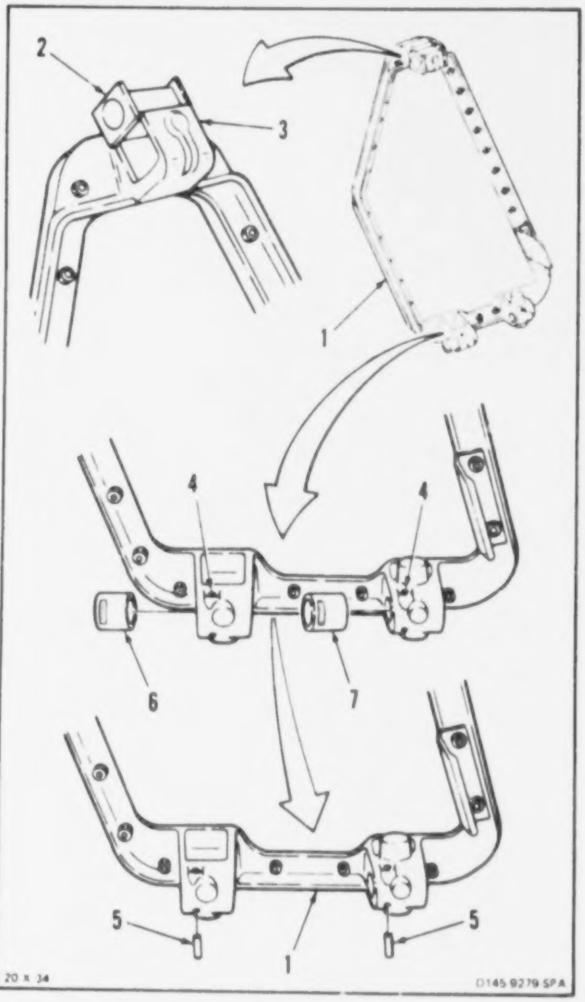
Personnel Required:
67U10 Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P

Equipment Condition:
Off Helicopter Task
Jettisonable Door Sliding Window Removed (Task 2-93)

1. Position soft cloth (E128) under window frame (1).
2. **Remove bushing (2)** from bushing support (3).
3. Insert punch in holes (4) and drive pins (5) from window frame (1) and bushings (6 and 7).
4. **Remove bushings (6 and 7).**
5. **Position new bushings (6 and 7), and align slotted holes in bushings with holes (4) in window frame (1).**
6. Install pins (5).
7. **Install new bushing (2)** in support (3).

INSPECT



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-96 INSTALL JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL 2-96

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Acid Swabbing Brush
Torque Wrench, 30 to 150 Inch-Pounds
Torque Wrench, 5 to 50 Inch-Pounds

Parts:

Seal

Materials:

Adhesive (E55 and E56)
Cloth, Cleaning (E120)
Naphtha (E246)
Sealant Tape (E348)
Gloves (E186)

Personnel Required:

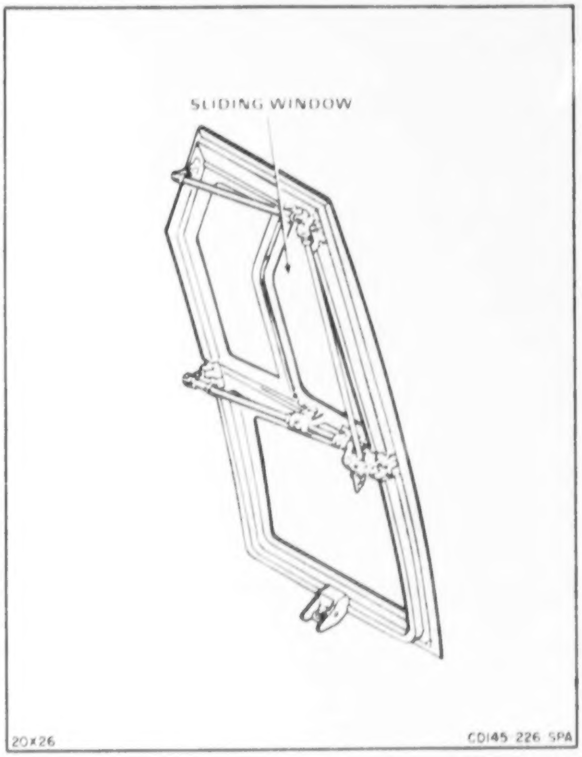
Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P

Equipment Condition:

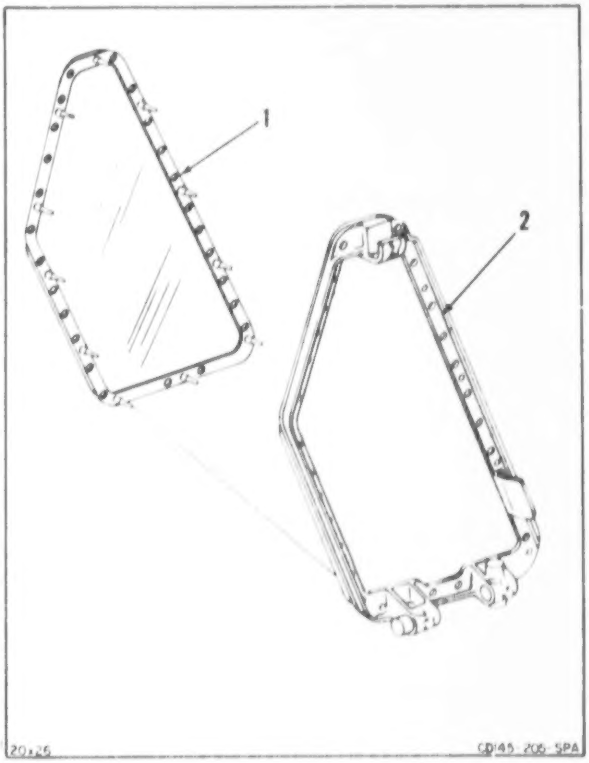
Task To Be Performed In Well-Ventilated Area
Off Helicopter Task



NOTE

Procedure is same to install pilot's or copilot's sliding window plastic panel. Copilot's window panel is shown here.

1. **Install layer of sealant tape (E348)** on inside surface of window panel (1) that fits against window frame (2).
2. **Install panel (1)** with sealant tape against window frame (2), and hold panel in place until secured in step 3.



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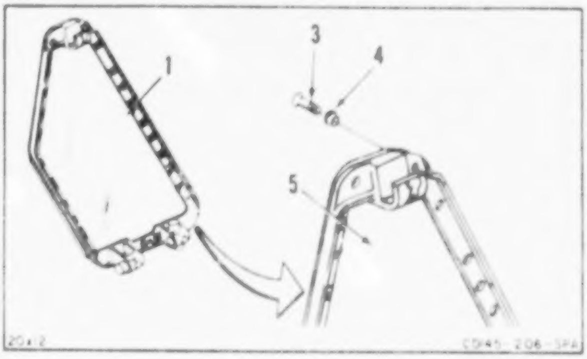
2-96 INSTALL JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL (Continued) 2-96

3. **Secure panel (1):**

   a. Install two screws (3) and washers (4) from outer side of window (5).


3
4
1
5
20x2
CD45-206-SPA

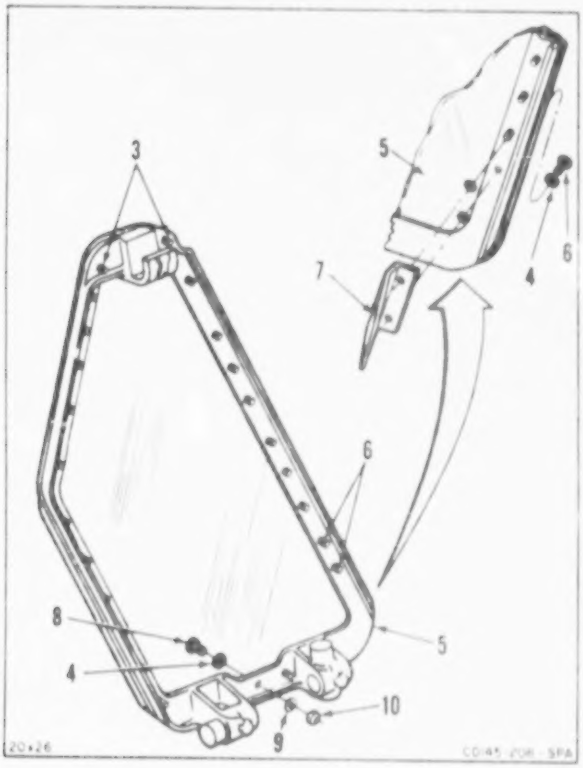
   b. Install two screws (6) and washers (4) from outer side of window (5).

   c. Position handle (7) on screws (6).

   d. Install 23 screws (8) and washers (4) from outer side of window (5).

   e. Install 27 washers (9) and nuts (10) on screws (3, 6, and 8).

4. Torque nuts (10) to 12 inch-pounds.


3
5
6
4
7
6
8
4
5
10
9
20x26
CD45-206-SPA

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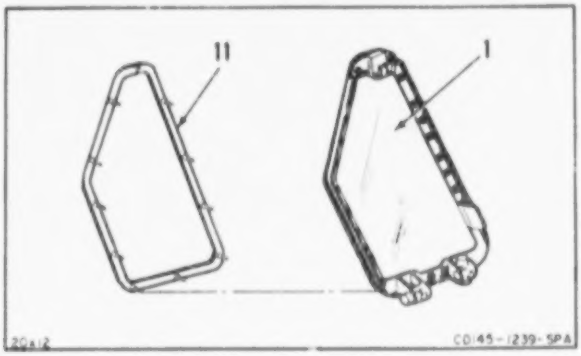
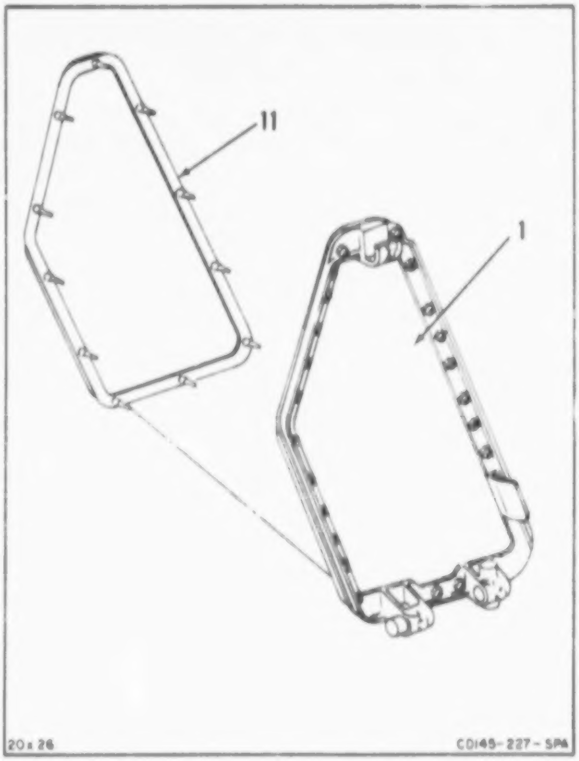
2-96 INSTALL JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL (Continued) 2-96



WARNING

Naphtha (E245) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

5. **Clean outer surface of panel (1)** with naphtha (E245), where new seal (11) will be installed. Wear gloves (E186).



WARNING

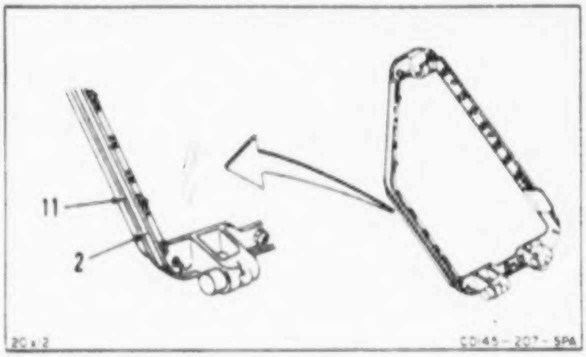
Adhesive (E55 and E56) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

6. **Coat surface of new seal (11),** facing surface of panel (1), with adhesive (E55 and E56). Wear gloves (E186).
7. **Install seal (11)** with adhesive coated side against panel (1).
8. Press seal (11) flush to panel (1) so adhesive will bond.

GO TO NEXT PAGE

2-96 INSTALL JETTISONABLE DOOR SLIDING WINDOW PLASTIC PANEL (Continued) 2-96

9. **Check window seal (11).** Check that window seal is within 1/16-inch from edge of window frame (2). If it is not, trim edge of seal.



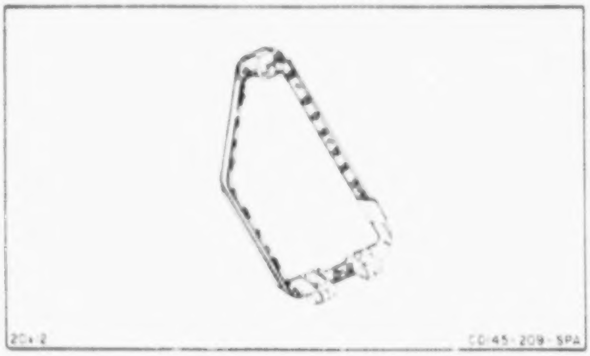
INSPECT

FOLLOW-ON MAINTENANCE

Install jettisonable door sliding window assembly (Task 2-97).

Install jettisonable door (Task 2-89).

Check window for leaks (Task 2-61).



END OF TASK

2-97 INSTALL JETTISONABLE DOOR SLIDING WINDOW 2-97

INITIAL SETUP

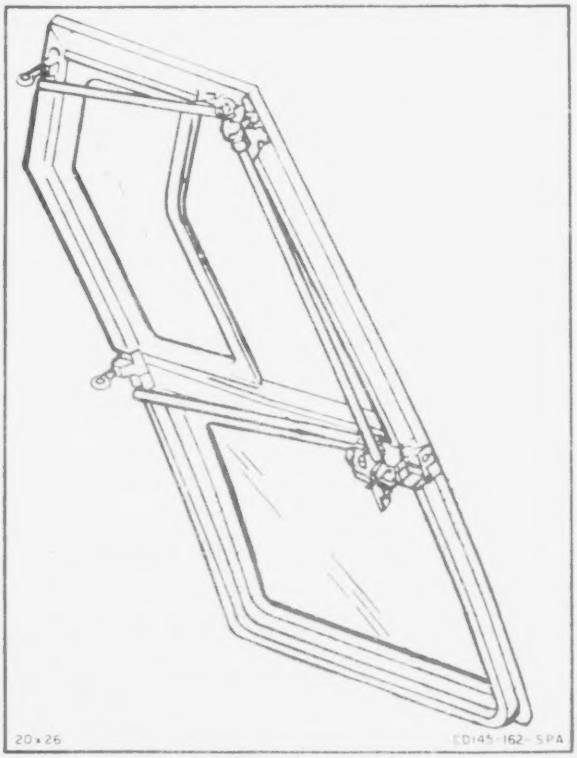
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



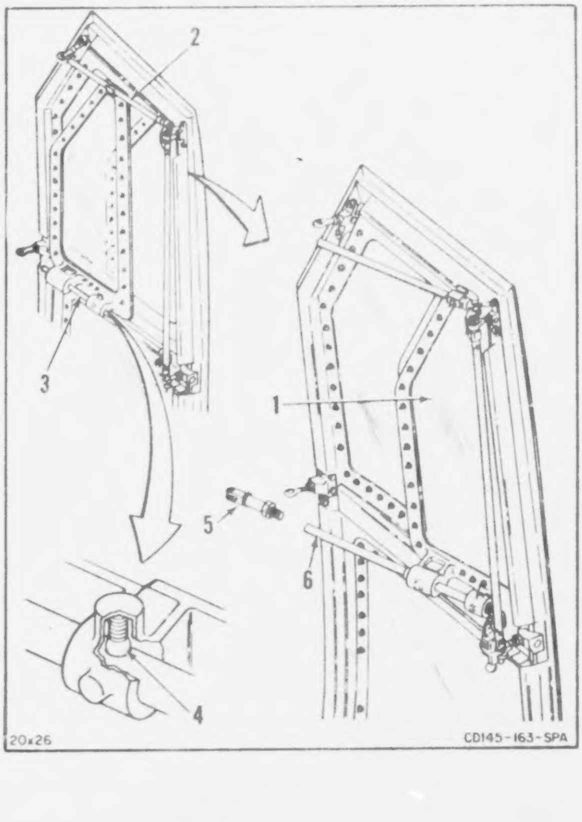
CAUTION

Detent ball can easily be lost. Install sliding window carefully on connecting links to prevent losing ball from window detent.

NOTE

Procedure is same to install either pilot's or copilot's jettisonable door sliding window. Copilot's door shown here.

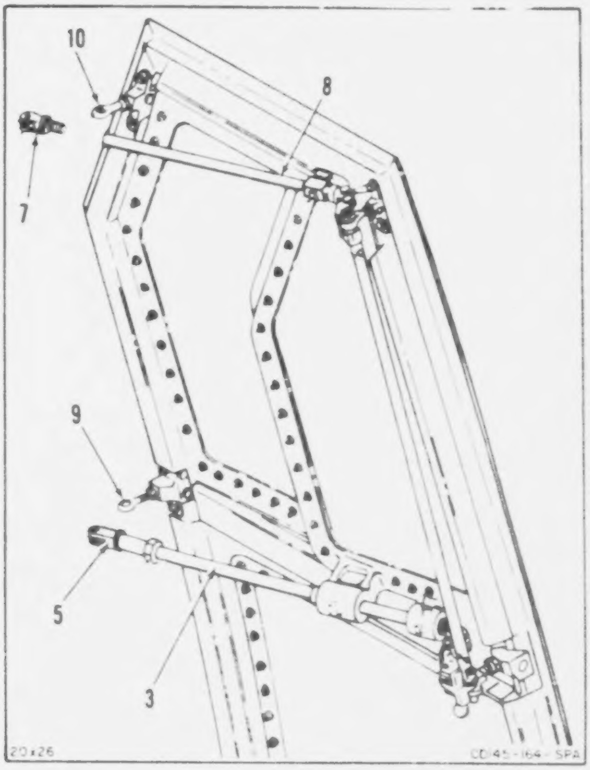
1. **Position window (1) on connecting links (2 and 3). Make sure detent ball (4) is in place.**
2. Slide window (1) to closed position.
3. **Install rod end clevis (5)** in link (6) same number of turns recorded at removal.



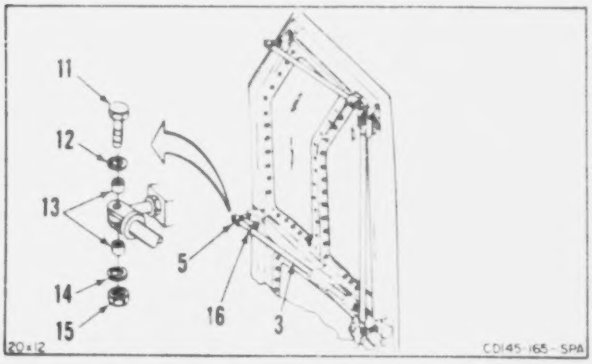
GO TO NEXT PAGE

2-97 INSTALL JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-97

4. Screw rod end clevis (7) in link (8) same number of turns recorded at removal.
5. **Fit clevises (5 and 7)** to door rod end bearings (9 and 10).

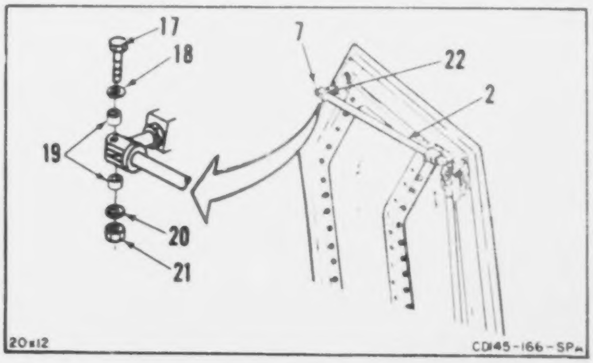

10
8
7
9
5
3
20x26
CD145-164-SPA

6. **Connect clevis (5)** by installing bolt (11), washer (12), two bushings (13), washer (14), and nut (15).
7. Tighten nut (16) against end of connecting link (3).


11
12
13
5
14
15
16
3
20x12
CD145-165-SPA

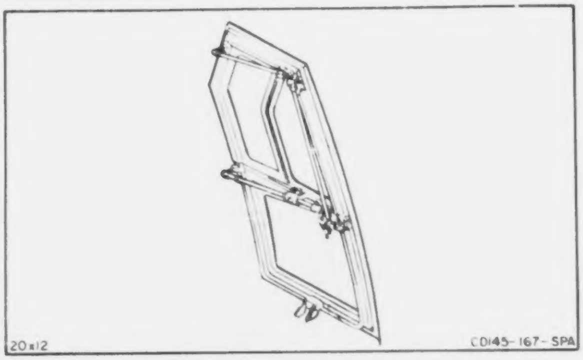
8. **Connect clevis (7)** by installing bolt (17), washer (18), two bushings (19), washer (20), and nut (21).
9. Tighten nut (22) against end of connecting link (2).

INSPECT


17
18
7
22
2
19
20
21
20x12
CD145-166-SPA

GO TO NEXT PAGE

2-97 INSTALL JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-97



FOLLOW-ON MAINTENANCE:

Adjust jettisonable door sliding window (Task 2-98).

Test jettisonable door sliding window (Task 2-105).

Install jettisonable door (Task 2-89).

Check window for leaks (Task 2-61).

END OF TASK

2-98 ADJUST JETTISONABLE DOOR SLIDING WINDOW 2-98

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Torque Wrench, 30 to 150 Inch-Pounds

Crowfoot Attachment, 1-Inch

Workstand, Three-Step

Materials:

None

Personnal Required:

Medium Helicopter Repairer

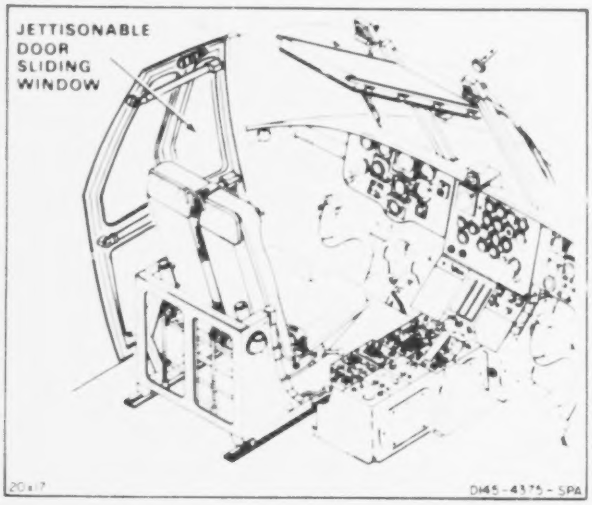
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

Hydraulic Power Off

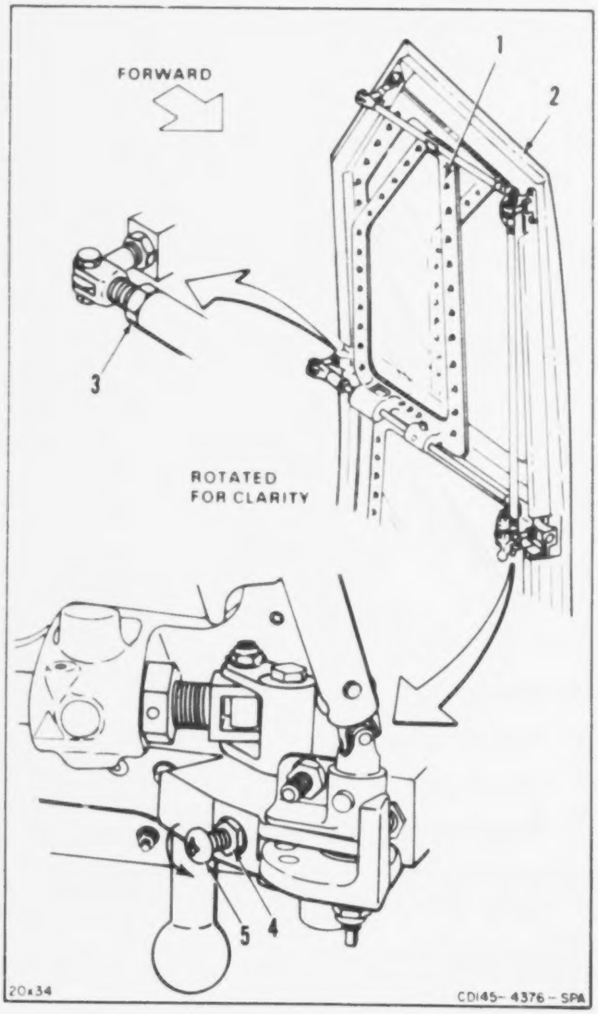

JETTISONABLE DOOR SLIDING WINDOW
20x17
DI45-4375-SPA

NOTE

Procedure is same to adjust pilot's or copilot's jettisonable door sliding windows. Copilot's window is shown here.

ADJUST LOWER LINK OVERTRAVEL

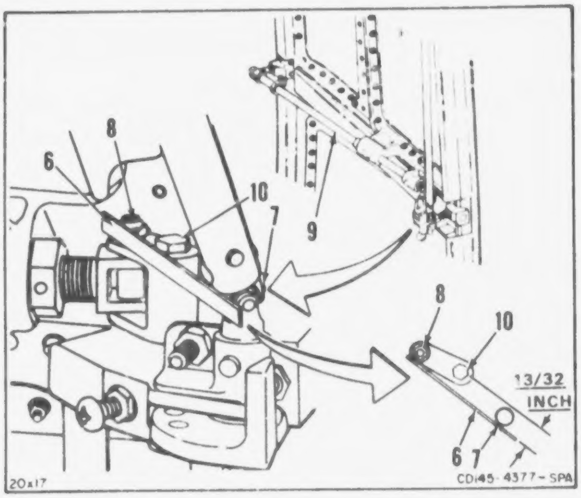
1. **Close and lock sliding window (1)** of jettisonable door (2)
2. **Loosen locknut (3).**
3. **Loosen locknut (4).**
4. **Turn stop screw (5) four full turns counterclockwise.**


FORWARD
1
2
3
ROTATED FOR CLARITY
5
4
20x34
CDI45-4376-SPA

GO TO NEXT PAGE

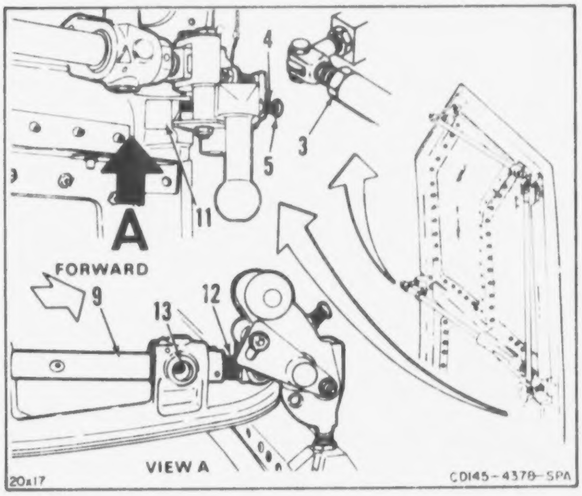
2-98 ADJUST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-98

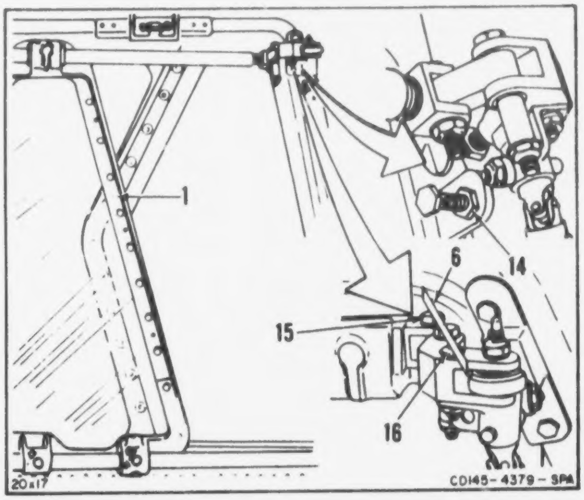
5. **Position straightedge (6)** between pin (7) and bolt (3).
6. **Turn connecting link (9)** clockwise or counterclockwise **until distance from straightedge (6) to bolthead (10) is 13/32-inch.**


8
6
10
7
9
8
10
13/32 INCH
6
7
20x17
CD145-4377-SPA

7. **Turn stop screw (5) clockwise until stop screw touches stop (11).**
8. **Tighten locknut (4).**
9. **Check rod end (12) through inspection hole (13).** Rod end shall engage connecting link (9).
10. **Torque locknut (3) to 100 inch-pounds.**

INSPECT


4
3
5
A
11
FORWARD
9
13
12
VIEW A
20x17
CD145-4378-SPA


1
6
14
15
16
20x17
CD145-4379-SPA

ADJUST UPPER LINK OVERTRAVEL

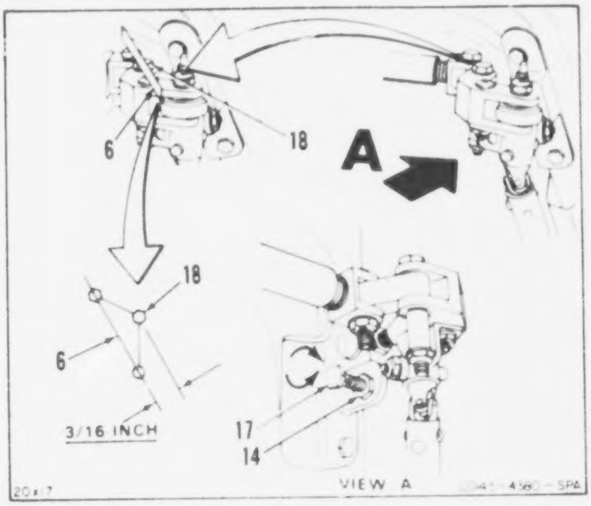
11. Open sliding window (1) to full detent.
12. Loosen locknut (14).
13. **Lock window (1) in open position.**
14. **Position straightedge (6)** between center of bolt (15) and center of bolt (16).

GO TO NEXT PAGE

2-98 ADJUST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-98

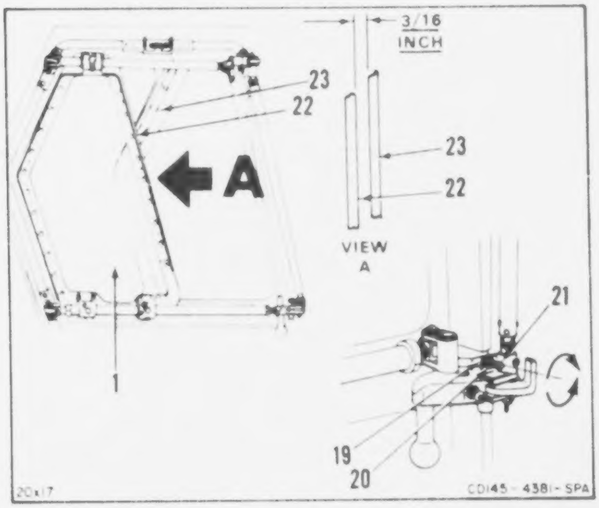
15. **Turn stop bolt (17)** clockwise or counterclockwise **until distance** between straightedge (6) and bolt (18) **is 3/16-inch.**
16. **Tighten locknut (14).**

INSPECT

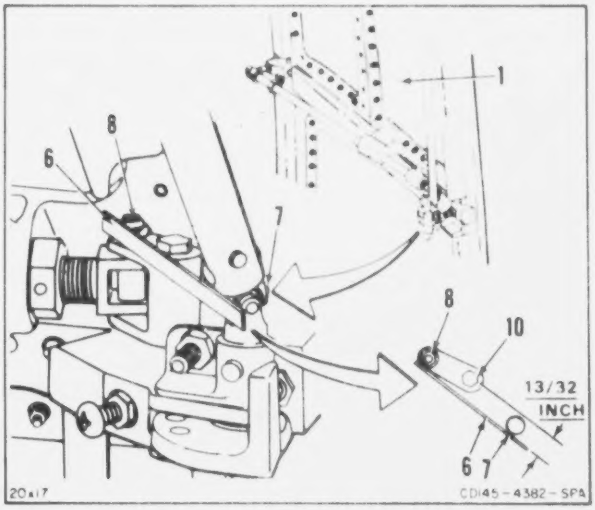

6
18
A
18
6
3/16 INCH
17
14
VIEW A
20x17
CD145-4380-SPA

ADJUST CENTER POST CLEARANCE

17. **Open sliding window (1)** to full detent position.
18. **Loosen locknuts (19 and 20).**
19. **Turn stop screw (21)** clockwise or counterclockwise **until gap between frame (22)** of sliding window **and center post (23) is 3/16-inch.**


3/16 INCH
23
22
A
23
22
VIEW A
21
1
19
20
20x17
CD145-4381-SPA

20. **Close and lock sliding window (1).**
21. **Position straightedge (6)** between pin (7) and bolt (8).
22. **Check distance from straightedge (6) to bolthead (10).** Distance shall be 13/32-inch.

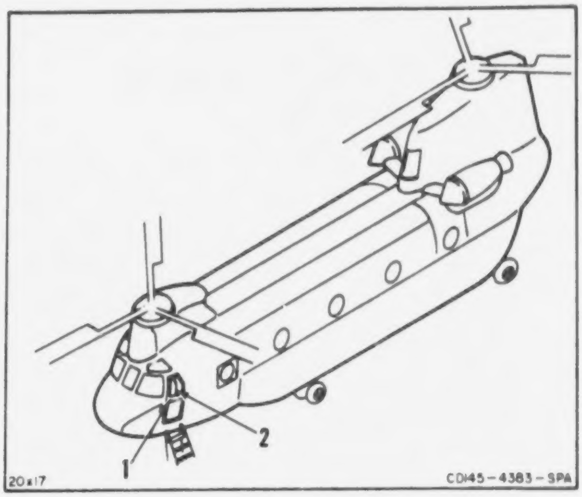

1
8
6
7
8
10
13/32 INCH
6
7
20x17
CD145-4382-SPA

GO TO NEXT PAGE

2-98 ADJUST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-98

23. From outside, **check top and bottom edges of window (1).** Window shall fair to contour of door (2) within 1/16-inch. If it does not, repeat steps 17 thru 22.

INSPECT



ADJUST DETENT

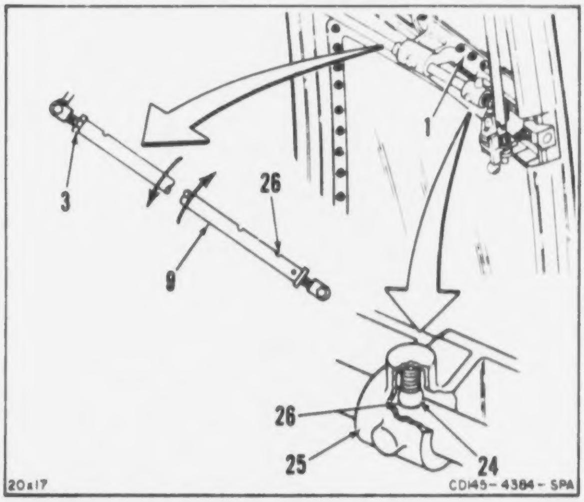
24. Close sliding window (1).
25. Loosen locknut (3).
26. Turn connecting link (9) clockwise or counterclockwise until detent ball (24) in window guide (25) drops into detent hole (26).

NOTE

Detent ball will click when it drops into detent hole.

27. **Torque locknut (3) to 100 inch-pounds.**

INSPECT



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-99 REMOVE JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM 2-99

INITIAL SETUP

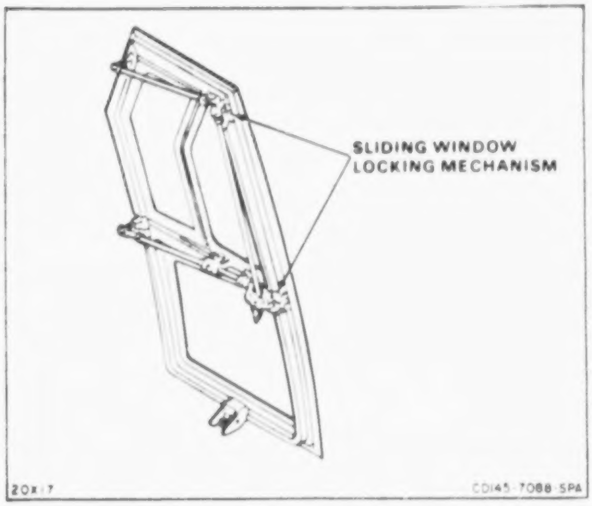
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

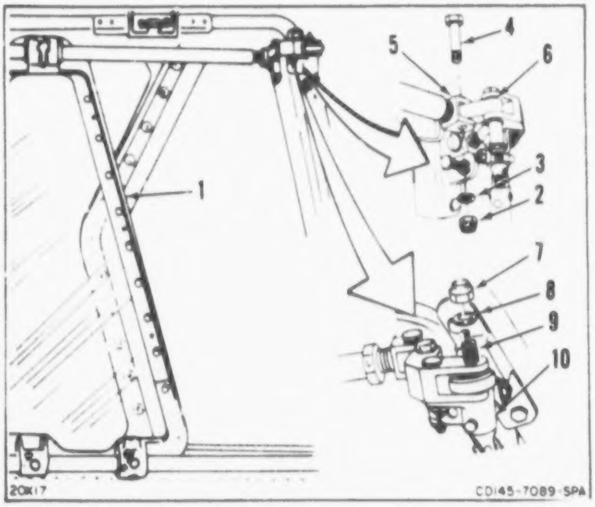
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


SLIDING WINDOW LOCKING MECHANISM
20x17
CD145-7088-SPA

1. Open sliding window (1).
2. **Remove** nut (2), washer (3), and **bolt (4)** from clevis (5) and link (6).
3. **Remove nut (7)** and washer (8) from fitting (9) on torque tube (10).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20x17
CD145-7089-SPA

GO TO NEXT PAGE

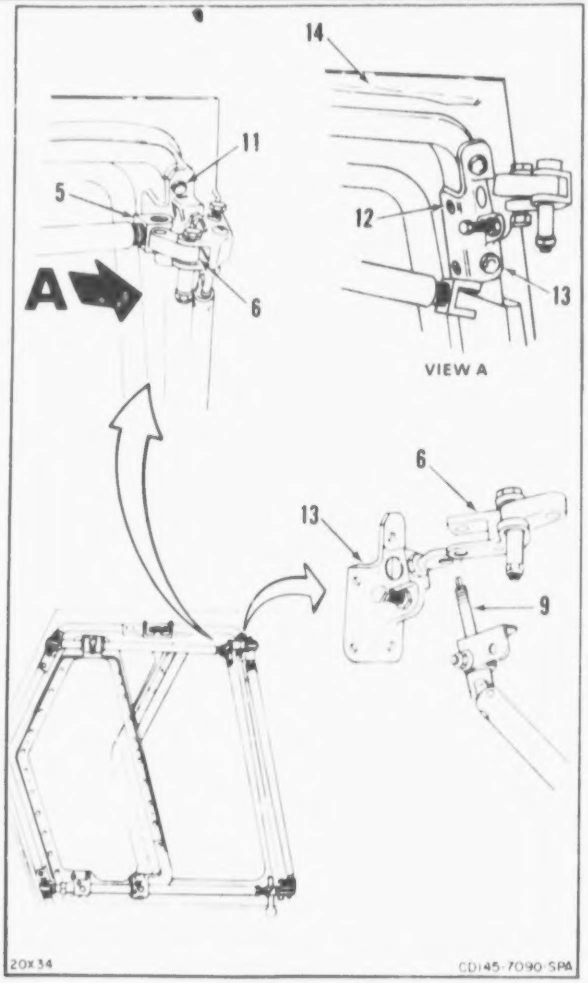
2-99 REMOVE JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM (Continued) 2-99

4. **Remove clevis (5)** from link (6).
5. **Remove two bolts (11) and two screws (12)** from support (13) and jettisonable door (14).

NOTE

Detent ball and spring will fall out of detent housing if housing is tilted. Remove housing with care.

6. **Remove support (13) and link (6)** from torque tube fitting (9).


14
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VIEW A
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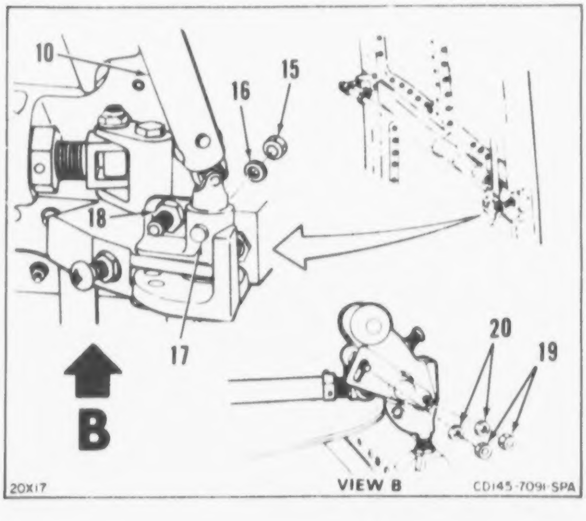
20X34
CD145-7090-SPA

7. **Remove** nut (15), washer (16), and **tapered pin (17)** from torque tube (10) and fitting (18).
8. **Remove torque tube (10)** from fitting (18).
9. **Remove two nuts (19)** and washers (20).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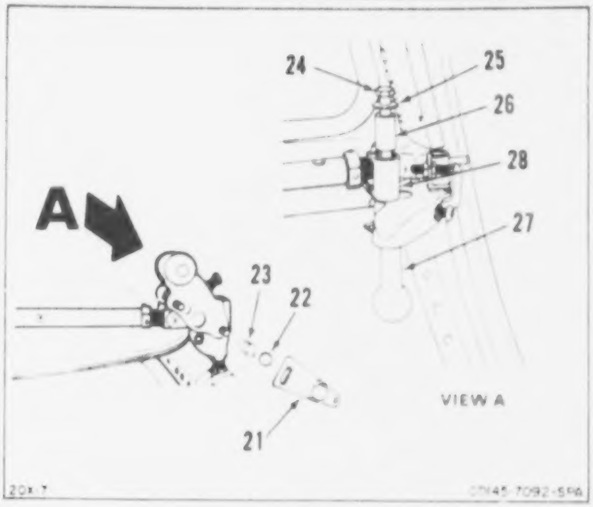
20X17
VIEW B
CD145-7091-SPA

GO TO NEXT PAGE

2-99 REMOVE JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM (Continued) 2-99

10. **Remove detent housing (21), ball (22), and spring (23).**
11. **Remove bolt (24),** washer (25), and spacer (26) from bellcrank (27) and link (28)


A
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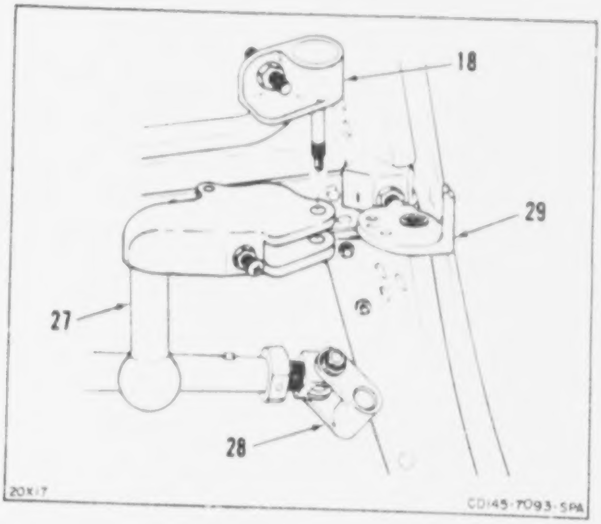
VIEW A
20X17
CD145-7092-SPA

12. **Remove link (28)** from bellcrank (27)
13. **Remove fitting (18)** from bellcrank (27)
14. **Remove bellcrank (27)** from support (29)


18
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20X17
CD145-7093-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-100 INSTALL JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM 2-100

INITIAL SETUP

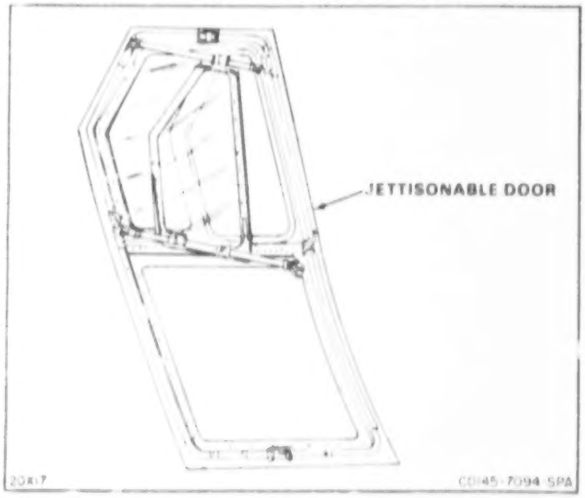
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

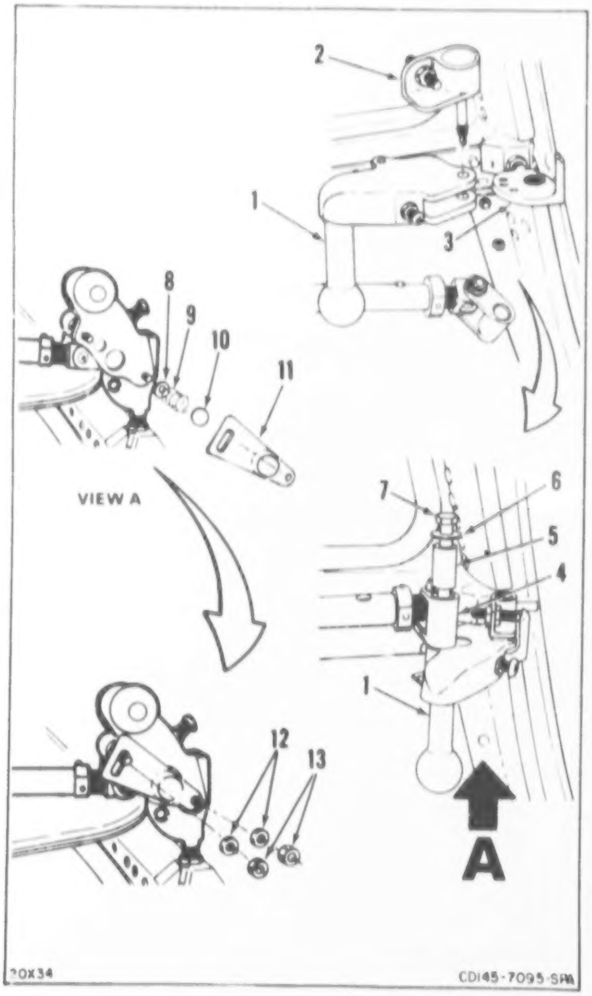

JETTISONABLE DOOR
20X17
CD145-7094-SPA

1. **Install bellcrank (1) and fitting (2)** on support (3).
2. **Install spacer (5),** washer (6), **and bolt (7)** on link (4) and bellcrank (1).

NOTE

Detent ball and spring will fall out of housing if housing is tilted. Install ball, spring, and housing with care.

3. **Install washer (8), spring (9), ball (10), and housing (11).**
4. **Install** two washers (12) and **nuts (13).**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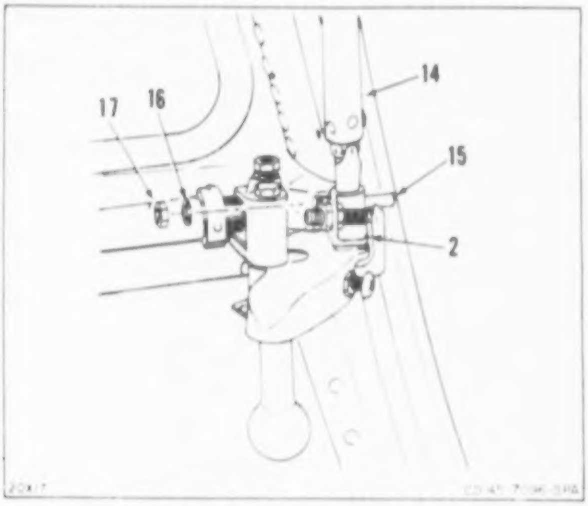
20X34
CD145-7095-SPA

GO TO NEXT PAGE

2-100 INSTALL JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM (Continued) 2-100

5. **Position torque tube (14)** in fitting (2) and align holes. **Install tapered pin (15),** washer (16), and nut (17).


14
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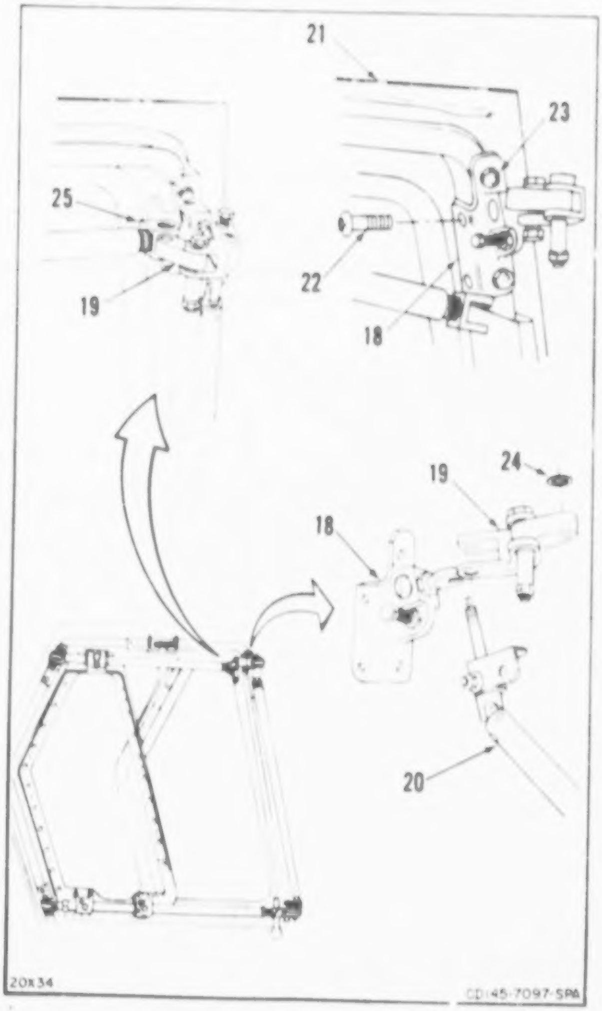
20X17
CD145-7096-SPA

6. Align holes in support (18) and link (19). **Position support and link** on torque tube fitting (20).
7. Align holes in support (18) and jettisonable door (21). **Install two screws (22) and two bolts (23).**
8. **Position washer (24) and clevis (25)** on link (19) and align holes.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CD145-7097-SPA

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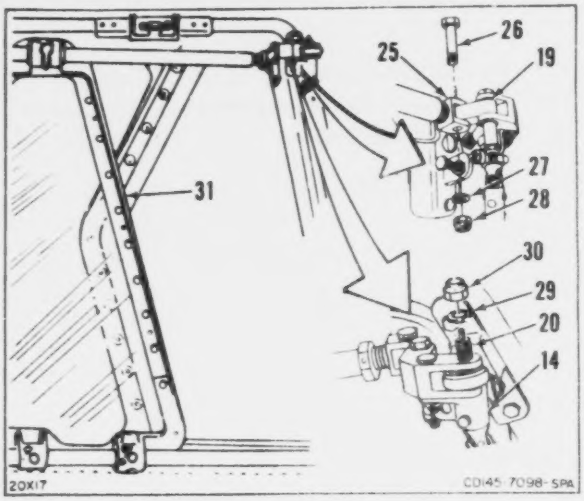
2-100 INSTALL JETTISONABLE DOOR SLIDING WINDOW LOCKING MECHANISM (Continued) 2-100

9. **Install bolt (26),** washer (27), and nut (28) in clevis (25) and link (19).
10. **Install washer (29)** and nut (30) on fitting (20) of torque tube (14).
11. Close window (31).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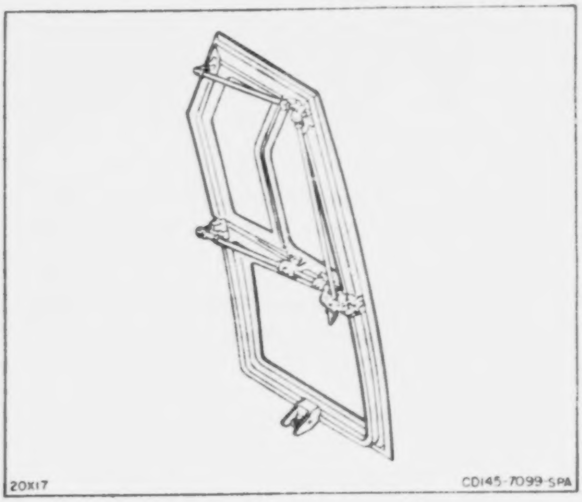
CD145-7098-SPA

INSPECT


20X17
CD145-7099-SPA

FOLLOW-ON MAINTENANCE:

Install jettisonable door (Task 2-89).

Adjust jettisonable door sliding window (Task 2-98).

END OF TASK

2-101 REMOVE JETTISONABLE DOOR UPPER FIXED WINDOW 2-101

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

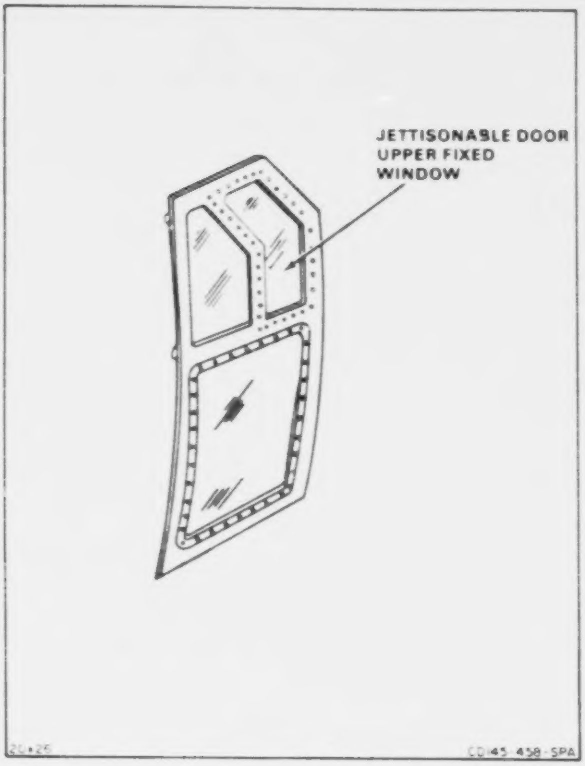
None

Personnel Required:

67U10 Medium Helicopter Repairer

Equipment Condition:

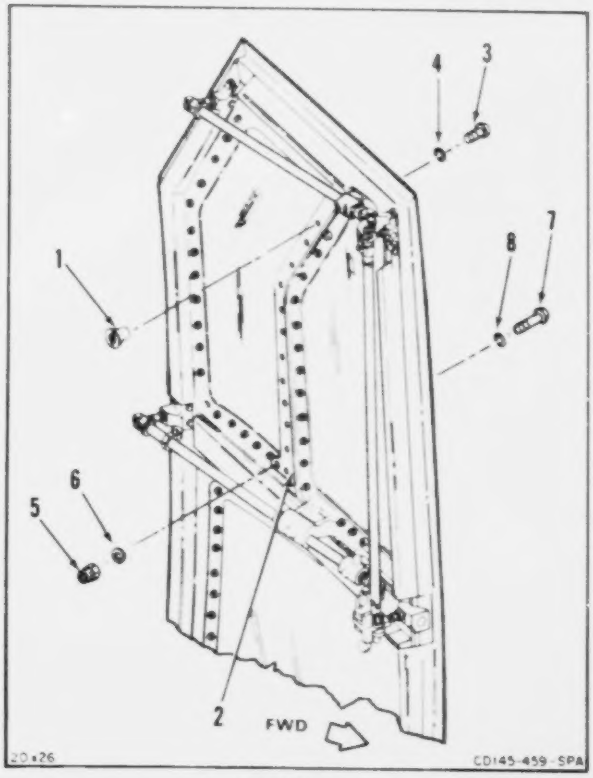
Off Helicopter Task


JETTISONABLE DOOR UPPER FIXED WINDOW
20×25
CD145-458-SPA

NOTE

Procedure is same for pilot's or copilot's jettisonable door. Copilot's jettisonable door is shown here.

1. Remove 14 nuts (1) from center post (2). Remove 14 screws (3) and washers (4).
2. Remove two nuts (5), washers (6), screws (7), and washers (8).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FWD
20×26
CD145-459-SPA

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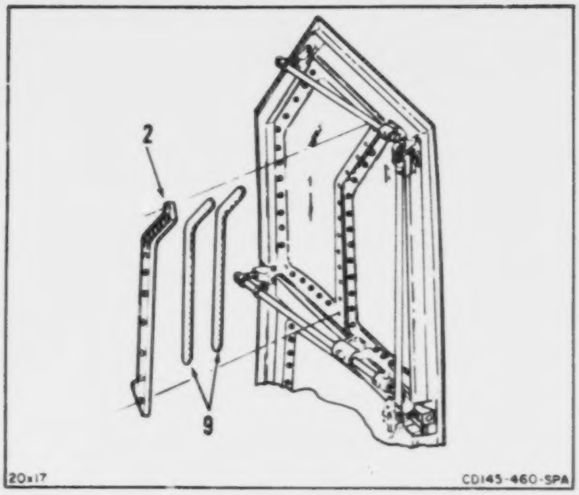
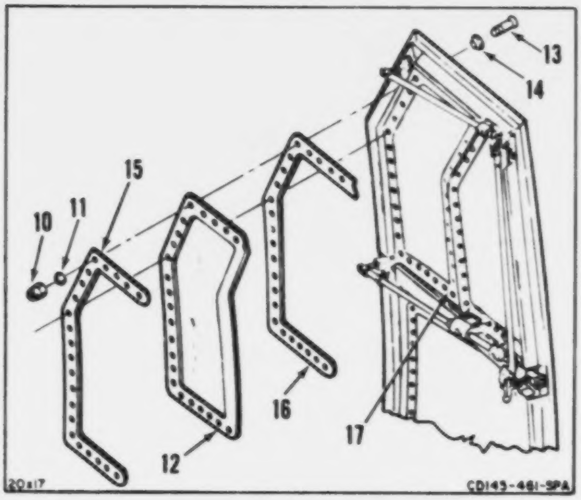
2-101 REMOVE JETTISONABLE DOOR UPPER FIXED WINDOW (Continued) 2-101

3. **Remove center post (2) and two seals (9).**


2
9
20x17
CD145-460-SPA

4. Remove 20 nuts (10) and washers (11) from around window panel (12).
5. Remove 20 screws (13) and washers (14).
6. **Remove retainer (15)** from window panel (12).
7. **Remove window panel (12).**
8. **Remove seal (16)** from frame (17) and window panel (12).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17
12
20x17
CD145-461-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-102 INSTALL JETTISONABLE DOOR UPPER FIXED WINDOW 2-102

INITIAL SETUP

Applicable Configurations:
All

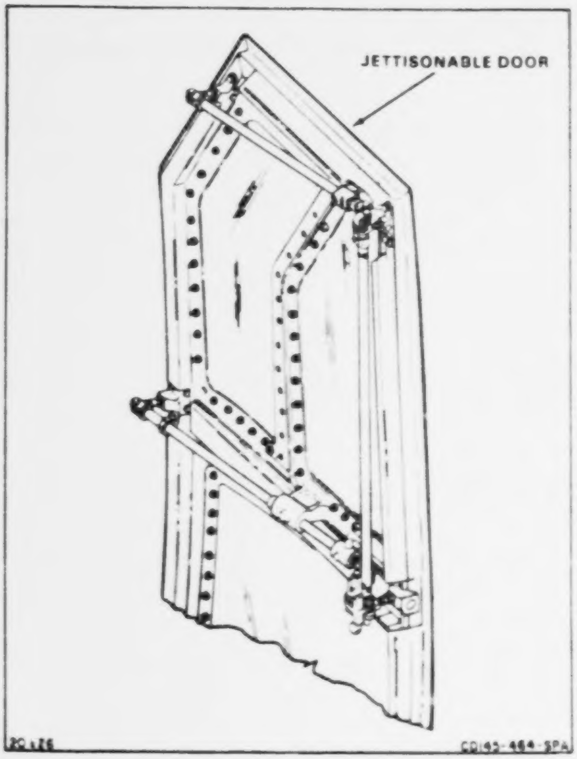
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 5 to 50 Inch-Pounds

Materials:
None

Parts:
Seals as Required

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

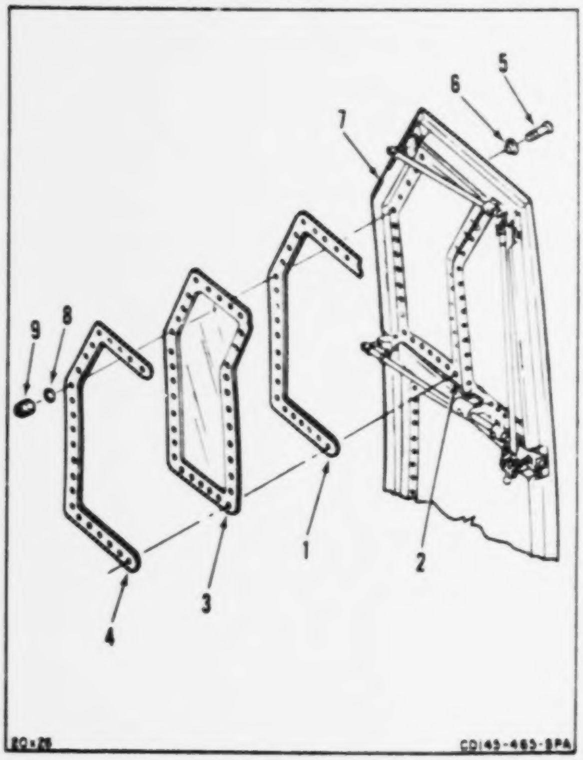
References:
TM 55-1520-240-23P



NOTE

Procedure is same for pilot's or copilot's jettisonable door. Copilot's jettisonable door is shown here.

1. **Install seal (1)** on window frame (2).
2. **Install window panel (3)** on seal (1).
3. **Install retainer (4)** on window panel (3).
4. Align screw holes through retainer (4), window panel (3), seal (1), and window frame (2).
5. **Install 20 screws (5)** and washers (6) from outside of door (7).
6. **Install 20** washers (8) and **nuts (9).**



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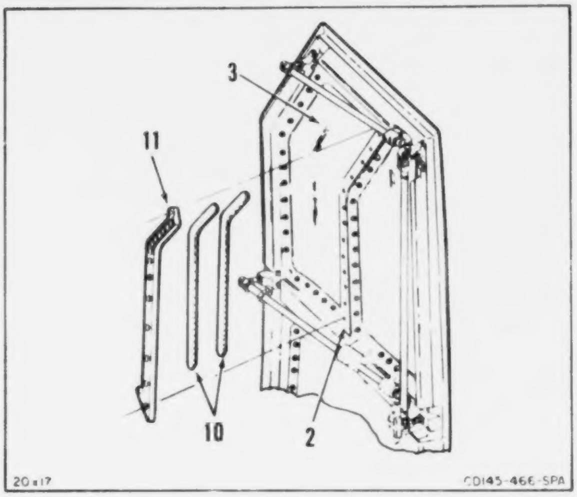
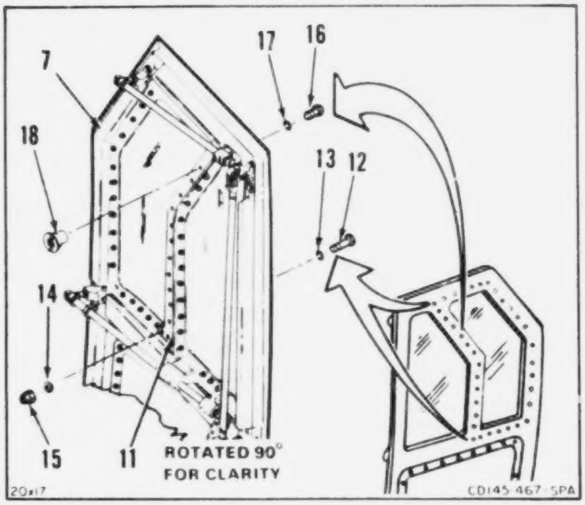
2-102 INSTALL JETTISONABLE DOOR UPPER FIXED WINDOW (Continued) 2-102

7. **Install two seals (10) and center post (11).**
8. Align screw holes through center post (11), seals (10), panel (3), and window frame (2).


3
11
10
2
20x17
CD145-466-SPA

9. From outside of door (7), **install two screws (12) and washers (13)** through top and bottom holes of center post (11).
10. **Install two washers (14) and nuts (15).**
11. From outside of door (7), **install 14 screws (16) and washers (17)** through center post (11).
12. **Install 14 nuts (18)** on screws (16).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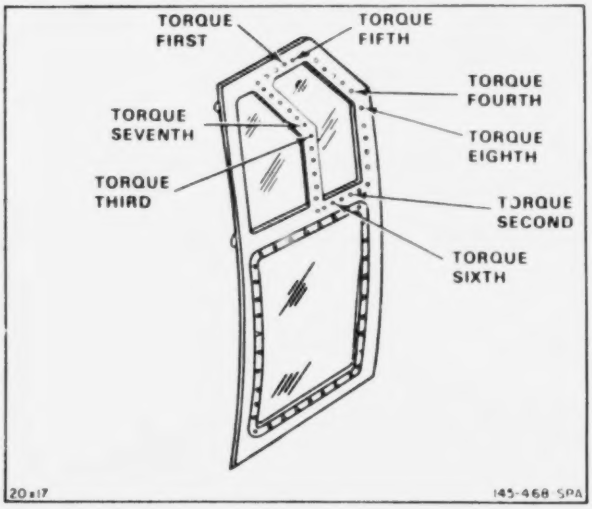
ROTATED 90° FOR CLARITY
20x17
CD145-467-SPA

13. Following torque sequence shown, **torque all window screws to 12 inch-pounds.** Use torque wrench


TORQUE FIRST
TORQUE FIFTH
TORQUE FOURTH
TORQUE SEVENTH
TORQUE EIGHTH
TORQUE THIRD
TORQUE SECOND
TORQUE SIXTH
20x17
145-468-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

Check window for leaks (Task 2-61).

END OF TASK

2-103 REMOVE JETTISONABLE DOOR LOWER FIXED WINDOW 2-103

INITIAL SETUP

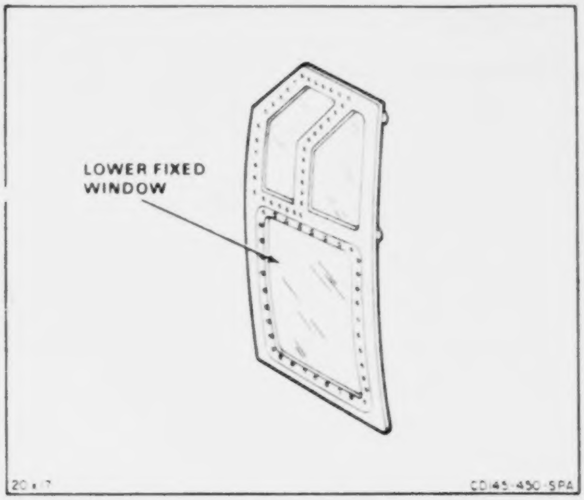
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Tape (E348)

Personnel Required:
67U10 Medium Helicopter Repairer

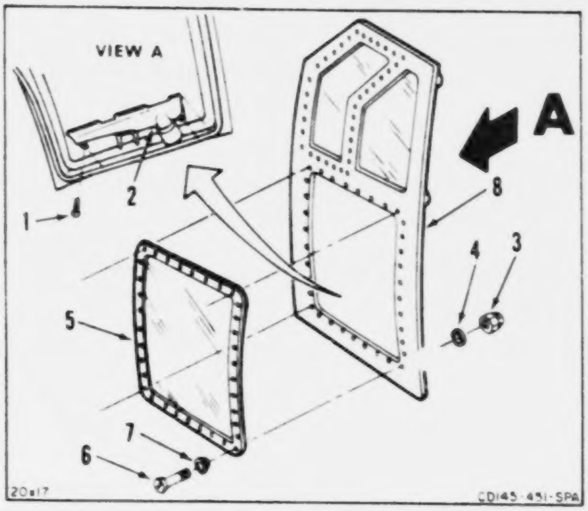
Equipment Condition:
Off Helicopter Task


LOWER FIXED WINDOW
20 x 17
CD145-450-SPA

NOTE

Procedure is same for pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.

1. Remove two screws (1) from duct (2). **Remove duct.**
2. **Remove 43 nuts (3) and washers (4)** from around window panel (5).
3. **Remove 43 screws (6) and washers (7)** from around panel (5).
4. **Remove panel (5)** from frame (8).


VIEW A
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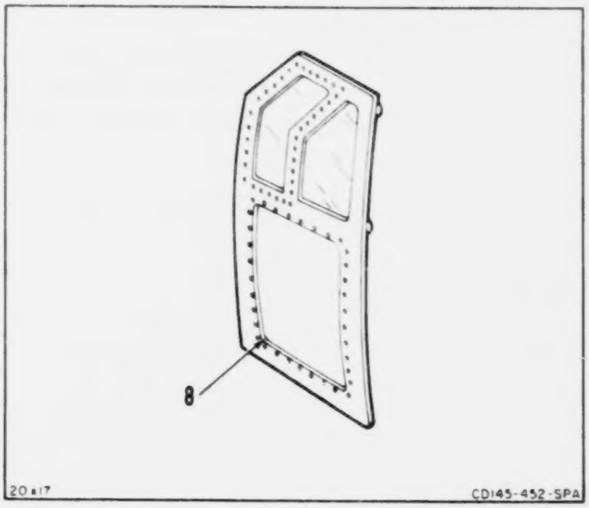
20 x 17
CD145-451-SPA

5. **Check that sealant tape on window frame (8) is not loose, cut, or nicked.** If tape is damaged, remove it and install new sealant tape (E348).

FOLLOW-ON MAINTENANCE:

None


8
20 x 17
CD145-452-SPA

END OF TASK

2-104 INSTALL JETTISONABLE DOOR LOWER FIXED WINDOW 2-104

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 5 to 50 Inch-Pounds

Materials:

None

Personnel Required:

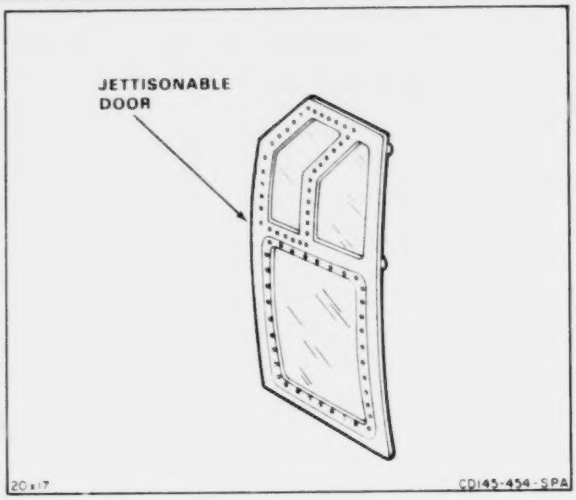
67U10 Medium Helicopter Repairer
67U30 Inspector

References:

TM 55-1520-240-23P

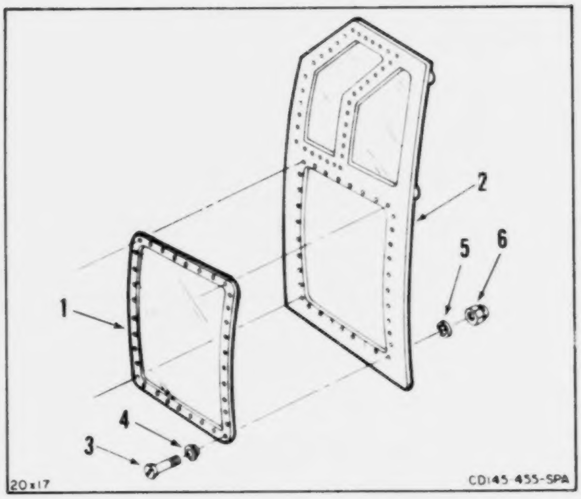
Equipment Condition:

Off Helicopter Task


JETTISONABLE DOOR
20x17
CD145-454-SPA

NOTE

Procedure is same for pilot's or copilot's jettisonable door. Pilot's jettisonable door is shown here.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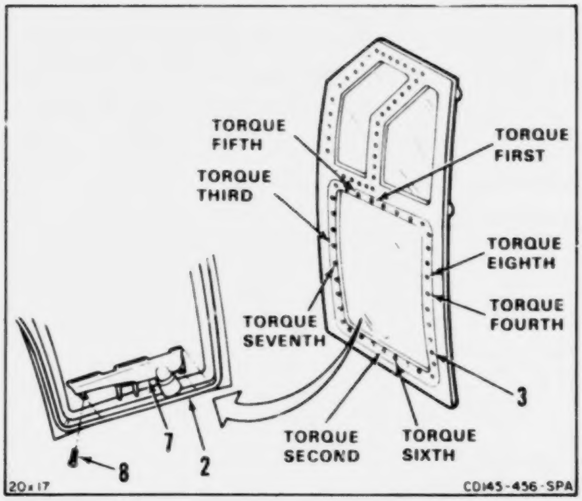
20x17
CD145-455-SPA

1. **Install window panel (1) on window frame (2).**
2. Align screw holes in window panel (1) and window frame (2).
3. **Install 43 screws (3) and washers (4) from outside of window panel (1).**
4. **Install 43 washers (5) and nuts (6)** on screws (3).
5. **Torque screws (3) to 12 inch-pounds.** Use torque wrench. Torque screws, following torque sequence shown, until all screws have been torqued.
6. Position duct (7) on frame (2). Install two screws (8).


TORQUE FIFTH
TORQUE FIRST
TORQUE THIRD
TORQUE EIGHTH
TORQUE FOURTH
TORQUE SEVENTH
3
TORQUE SECOND
TORQUE SIXTH
7
8
2
20x17
CD145-456-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

Install jettisonable door (Task 2-89).

Check window for leaks (Task 2-61).

END OF TASK

2-105 TEST JETTISONABLE DOOR SLIDING WINDOW 2-105

INITIAL SETUP

Applicable Configurations:
All

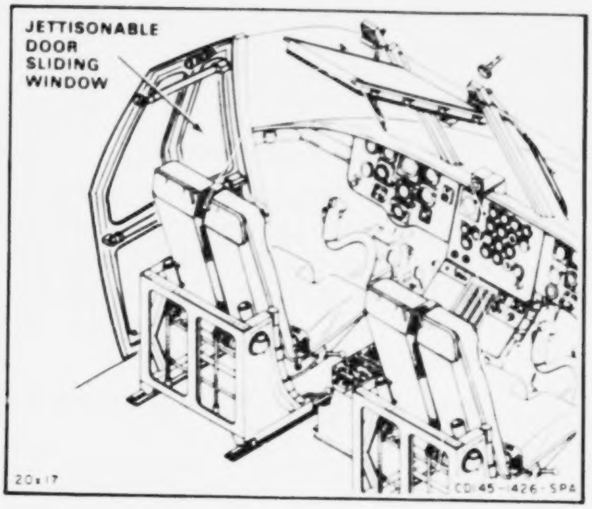
Tools:
Dial Indicating Scale, 0 to 70 Pounds
Push-Pull Scale, 0 to 80 Pounds

Materials:
None

Personnel Required:
67U20 Medium Helicopter Repairer

References:
Task 2-98
Task 2-343
Task 2-97
Task 2-85
Task 2-93

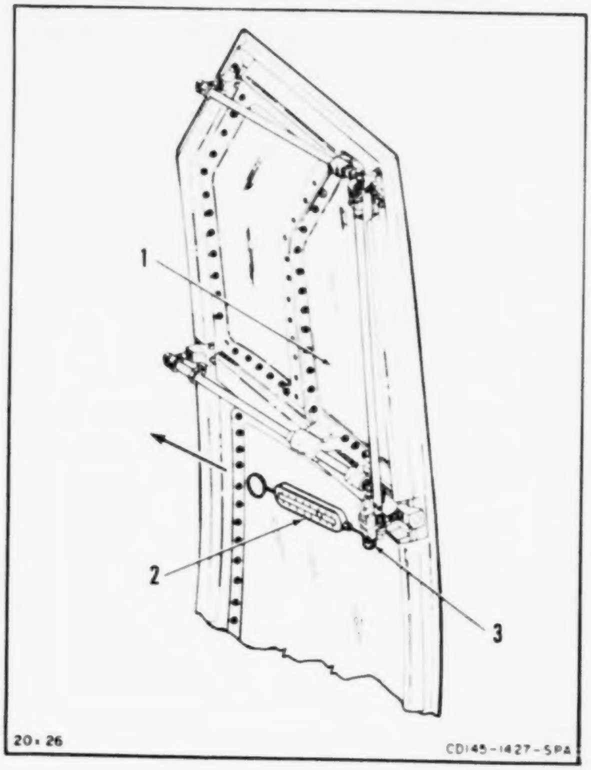
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedure is same for pilot's or copilot's sliding window. Copilot's sliding window is shown here.

1. Make sure sliding window (1) is closed and locked.
2. Place hook of scale (2) on window handle (3).
3. **Pull handle (3) with scale (2) to unlock window (1), while watching scale. Reading should be 50 pounds maximum.** If it is less, go to step 4. If reading is more than 50 pounds, do the following:
   a. Remove sliding window locking mechanism parts (Task 2-99).
   b. Clean all sliding window locking mechanism parts.
   c. Check all sliding window locking mechanism parts for corrosion. Remove all corrosion (Task 2-343).
   d. Check all sliding window locking mechanism parts for cracks and breaks. Replace damaged parts (Task 2-100).



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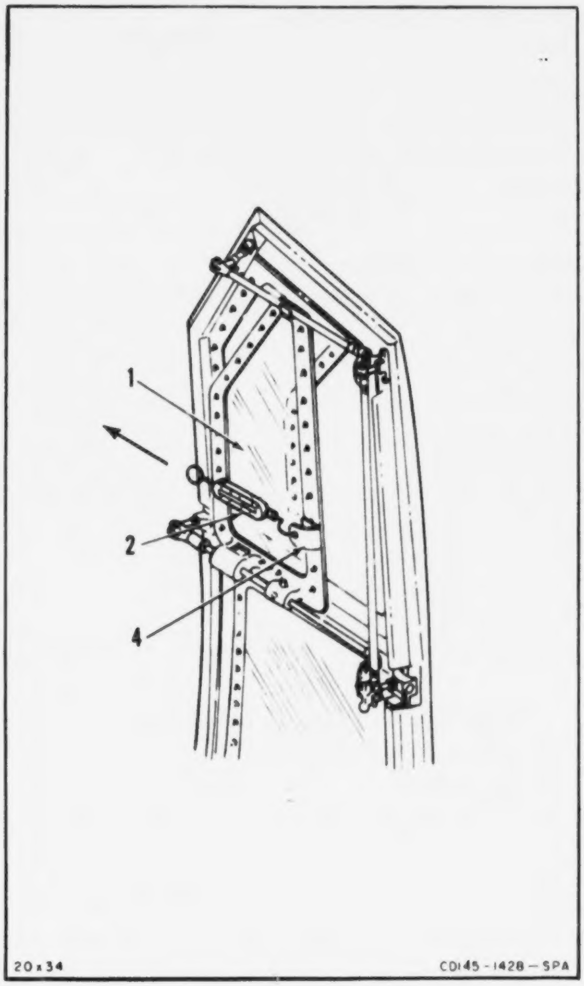
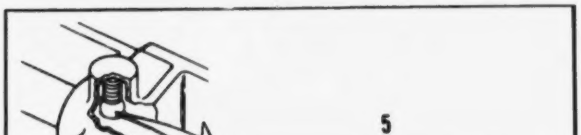
2-105 TEST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-105

   e. Install sliding window locking mechanism parts (Task 2-100).

4. Place hook of scale (2) on handle (4).
5. **Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be 15 pounds maximum.** If it is, less go to step 6. If reading is more than 15 pounds, do the following:
   a. Clean sliding window connecting links (Task 2-87).
   b. Move sliding window (1) to closed position.
   c. Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be 15 pounds maximum. If it is, less go to step 6. If reading is more than 15 pounds, go to step d.
   d. Replace sliding window bushings (Task 2-95).
   e. Make sure sliding window (1) is at closed position and unlocked.
   f. Pull handle (4) with scale (2) to move window (1) to full open position, while watching scale. Reading should be 15 pounds maximum. If it is less, go to step 6. If reading is more than 15 pounds, go to step g.
   g. Remove sliding window locking mechanism parts (Task 2-99).
   h. Check sliding window detent parts (5) for corrosion. Remove all corrosion (Task 2-343).
   i. Check sliding window connecting links (6) and (7) and detent parts (5) for bends, burrs, and breaks. Replace damaged parts.
   j. Install sliding window locking mechanism parts (Task 2-100).





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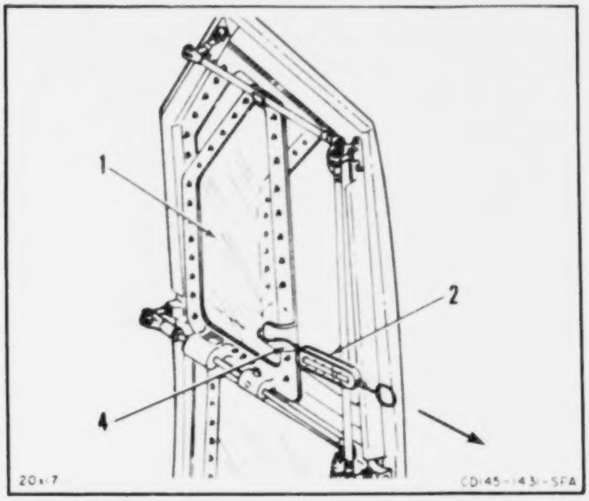
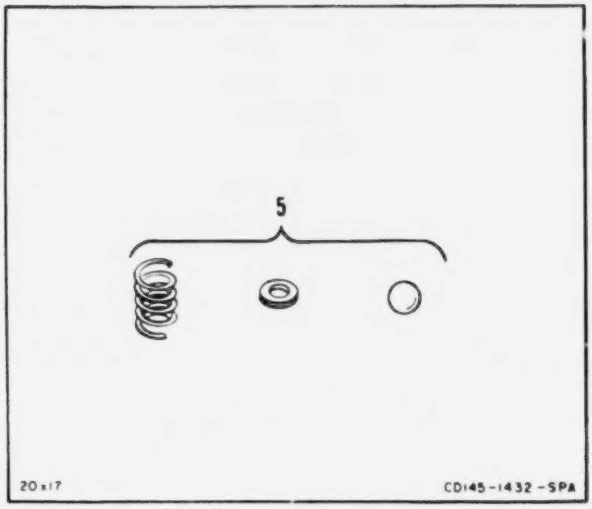
2-105 TEST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-105

6. Place hook of scale (2) on handle (4).
7. **Pull handle (4) with scale (2) to move window (1) to closed position, while watching scale. Reading should be 15 pounds maximum.** If it is less, go to step 8. If reading is more than 15 pounds, do the following:
   a. Clean sliding window connecting links (Task 2-87).
   b. Move sliding window (1) to open position.
   c. Pull handle (4) with scale (2) to move sliding window (1) to closed position, while watching scale. Reading should be 15 pounds maximum. If it is less, go to step 8. If reading is more than 15 pounds, go to step d.
   d. Replace sliding window bushings (Task 2-95).
   e. Make sure sliding window (1) is at open position.
   f. Pull handle (4) with scale (2) to move sliding window (1) to closed position, while watching scale. Pressure reading should be 15 pounds maximum. If it is less, go to step 8. If reading is more than 15 pounds, go to step g.



   g. Remove sliding window locking mechanism parts (Task 2-100).
   h. Check sliding window detent assembly parts (5) for corrosion. Remove all corrosion (Task 2-343).

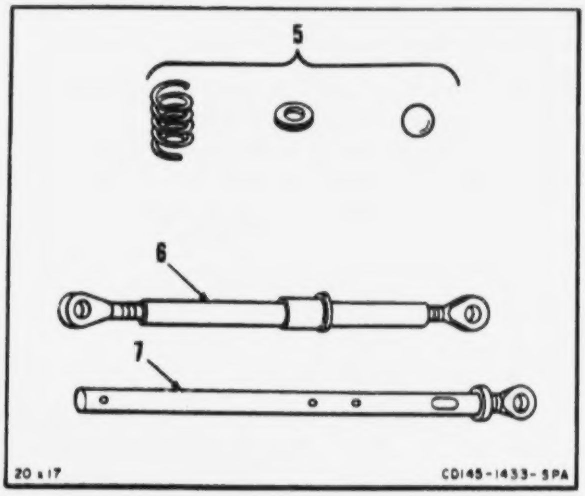


GO TO NEXT PAGE

2-105 TEST JETTISONABLE DOOR SLIDING WINDOW (Continued) 2-105

i. Check sliding window connecting links (6 and 7), and detent parts (5) for bends, burrs, and breaks. Replace damaged parts.

j. Install sliding window locking mechanism parts (Task 2-100).



8. Place rod end of scale (8) against handle (3).

9. **Push scale (8) against handle (3) to lock window (1), while watching scale. Reading should be 50 pounds, maximum.** If it is less, go to step 10. If reading is more than 50 pounds, do the following:

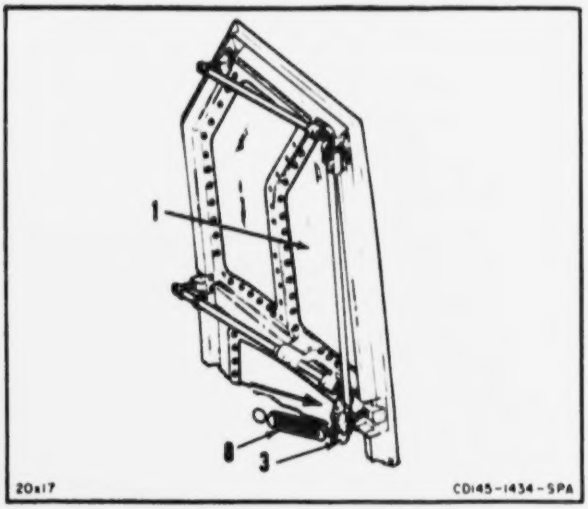
    a. Remove sliding window locking mechanism parts (Task 2-99).

    b. Clean all sliding window locking mechanism parts.

    c. Check all sliding window locking mechanism parts for corrosion. Remove all corrosion (Task 2-343).

    d. Check all sliding window locking mechanism parts for cracks and breaks. Replace damaged parts.

    e. Install sliding window locking mechanism parts (Task 2-100).



10. **Remove scale (8) from handle (3).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-106 CLEAN ACOUSTIC BLANKETS 2-106

INITIAL SETUP

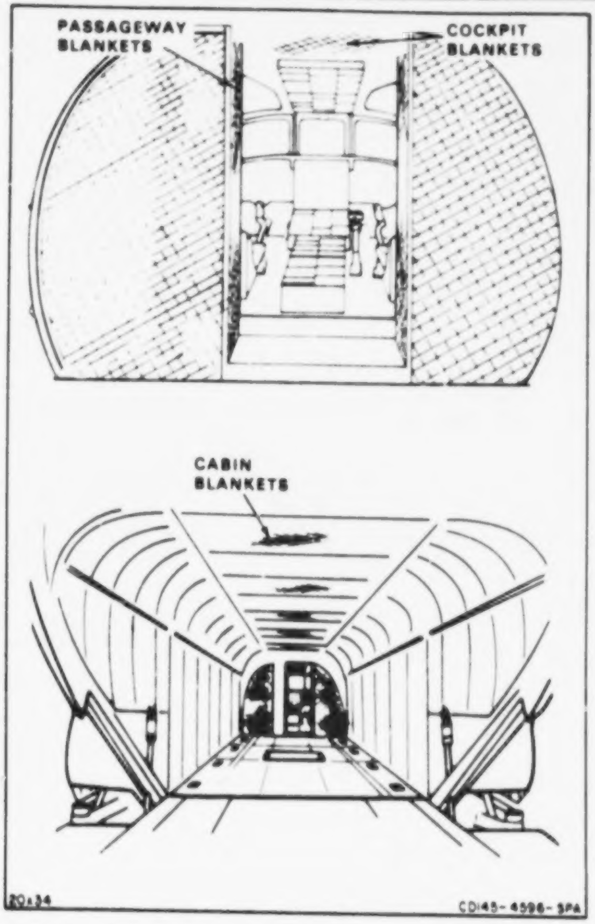
Applicable Configurations:
All

Tools:
None

Materials:
Dry Cleaning Solvent (E162)
Cloths (E120)
Container, 14 Quart
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electric Power Off
Hydraulic Power Off


PASSAGEWAY BLANKETS
COCKPIT BLANKETS
CABIN BLANKETS
20x34
CD145-4596-SPA

WARNING

Dry cleaning solvent (E162) is flammable and gives off toxic fumes. It can irritate skin and cause burns. Use only in well ventilated area away from heat and open flame. In case of contact immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

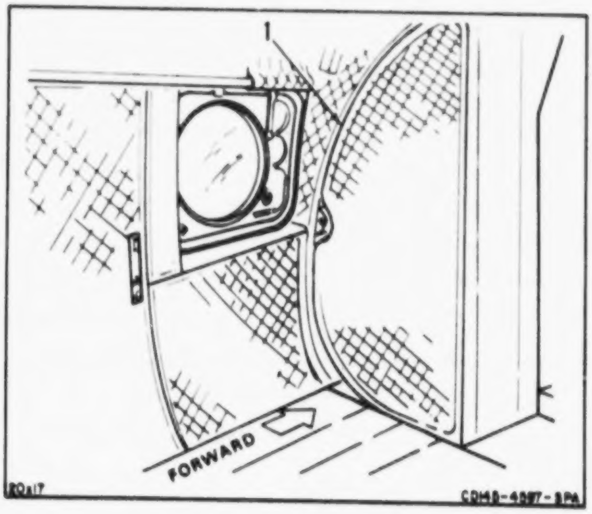
NOTE

Do not soak blanket with solvent.

1. Lightly rub blanket (1) with cloth (E120) wet with dry cleaning solvent (E162). Wear gloves (E186).

FOLLOW-ON MAINTENANCE:
None

END OF TASK


1
FORWARD
20x17
CD145-4597-SPA

2-107 REMOVE COCKPIT ACOUSTIC BLANKETS 2-107

INITIAL SETUP

Applicable Configurations:
All

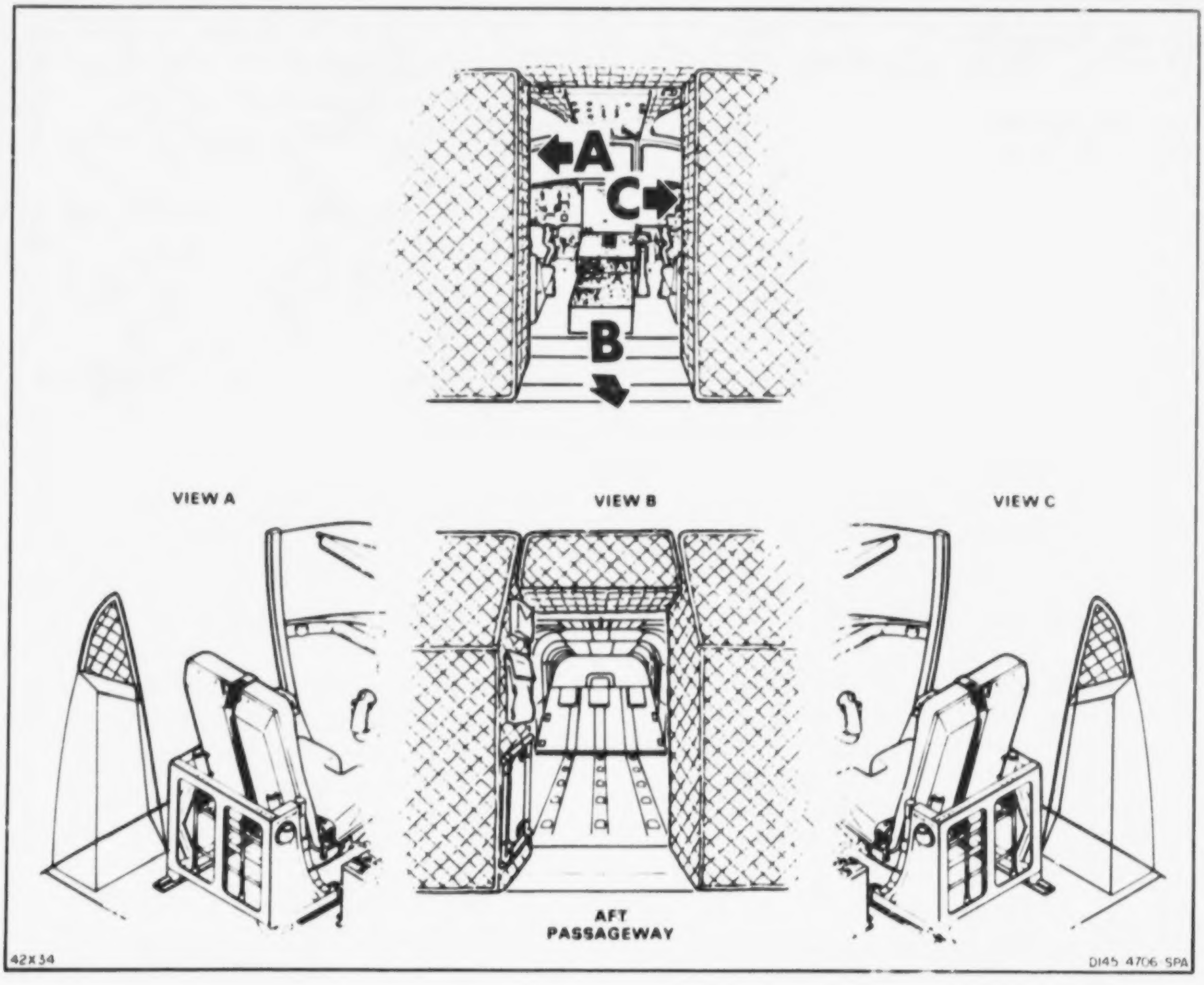
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-135
Task 2-134

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


A
C
B
VIEW A
VIEW B
VIEW C
AFT PASSAGEWAY
42X34
DI45 4706 SPA

GO TO NEXT PAGE

2-107 REMOVE COCKPIT ACOUSTIC BLANKETS (Continued) 2-107

REMOVE OVERHEAD BLANKETS

NOTE

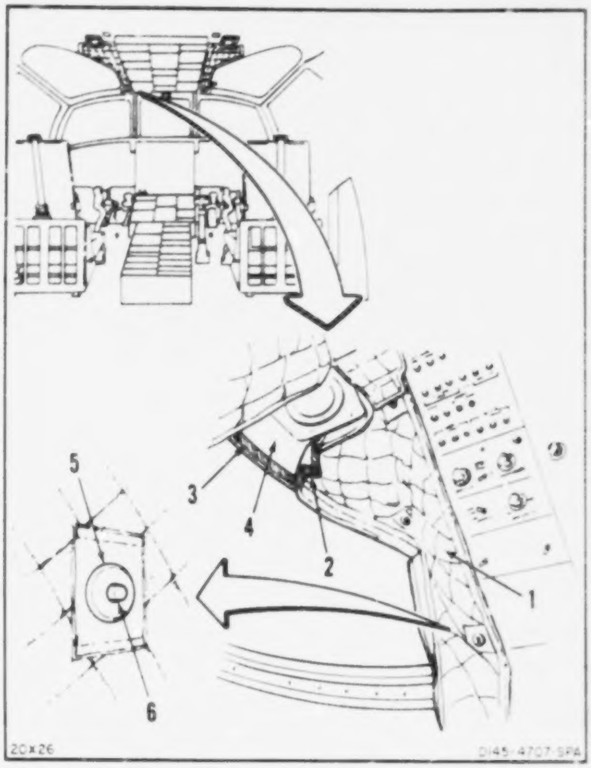
Procedure is same to remove overhead acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

1. **Pull back edges of overhead blanket (1) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).

NOTE

Disconnect fasteners from studs by pulling back that part of blanket around studs.

2. **Disconnect socket fasteners (5) on blanket (1) from studs (6)** on structure (4).
3. **Remove blanket (1).**

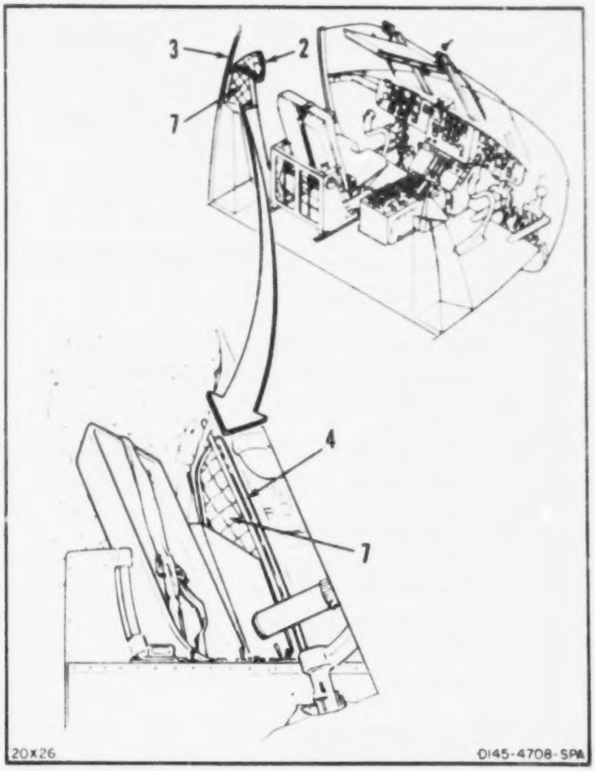


REMOVE SIDE BLANKETS

NOTE

Procedure is same to remove side acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

4. **Pull back edges of side blanket (7) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).
5. **Remove blanket (7).**



GO TO NEXT PAGE

2-107 REMOVE COCKPIT ACOUSTIC BLANKETS (Continued) 2-107

REMOVE BULKHEAD BLANKETS

NOTE

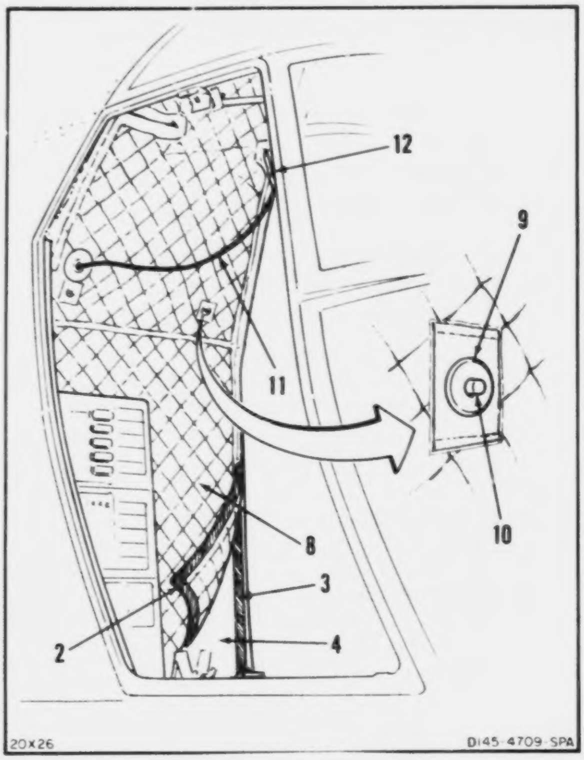
Procedure is same to remove bulkhead acoustic blanket on pilot's or copilot's side. Removal of copilot's blanket is shown here.

6. **Pull back edges of bulkhead blanket (8) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).

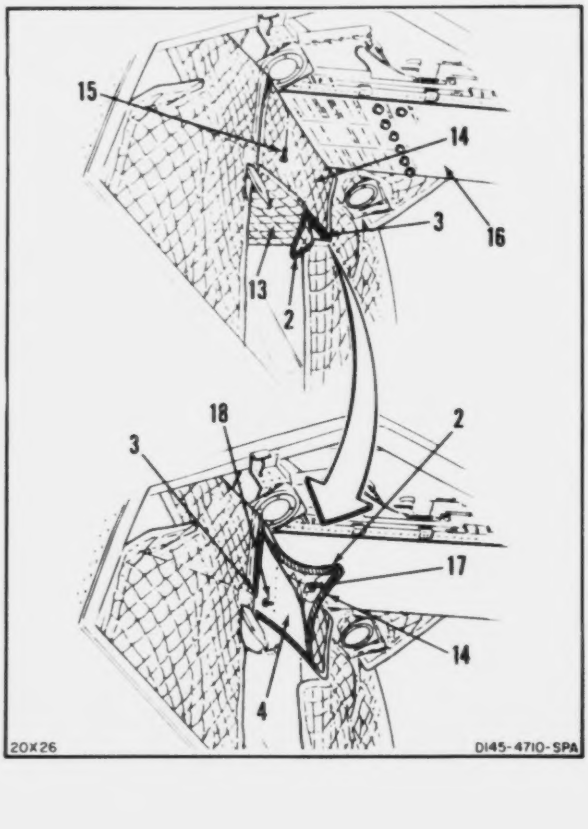
NOTE

Disconnect fasteners from studs by pulling back that part of blanket around studs.

7. **Disconnect six fasteners (9) on blanket (8) from studs (10)** on structure (4).
8. Pull blanket (8) away from structure (4).
9. Pull interphone cable (11) through hole in blanket (8).
10. Pull strap (12) through hole in blanket (8).



11. **Pull back overlapping edge of passageway forward overhead blanket (13) and separate hook tape (2) on blanket from pile tape (3)** on bulkhead center blanket (14).
12. Remove two bolts (15) and **lower overhead switch panel (16).**
13. **Pull back edges of blanket (14) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).
14. **Disconnect six fasteners (17) on blanket (14) from studs (18)** on structure (4).
15. **Remove blanket (14).**

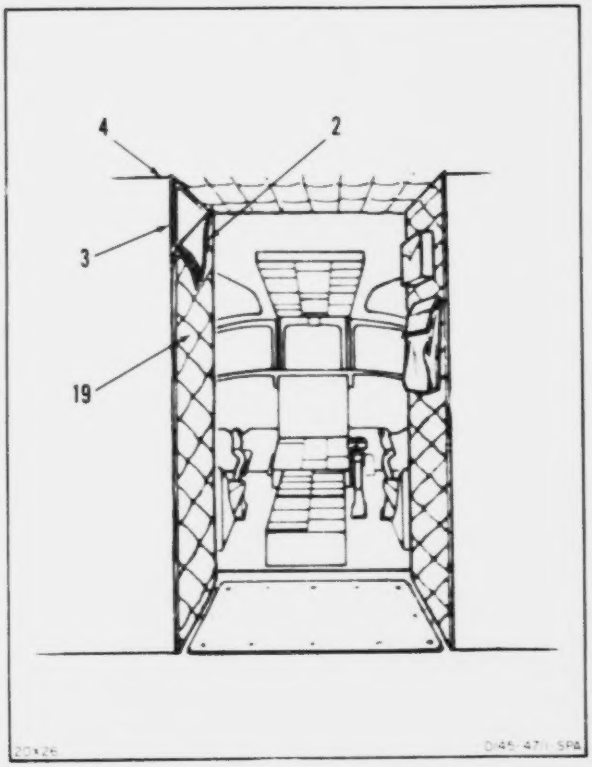


GO TO NEXT PAGE

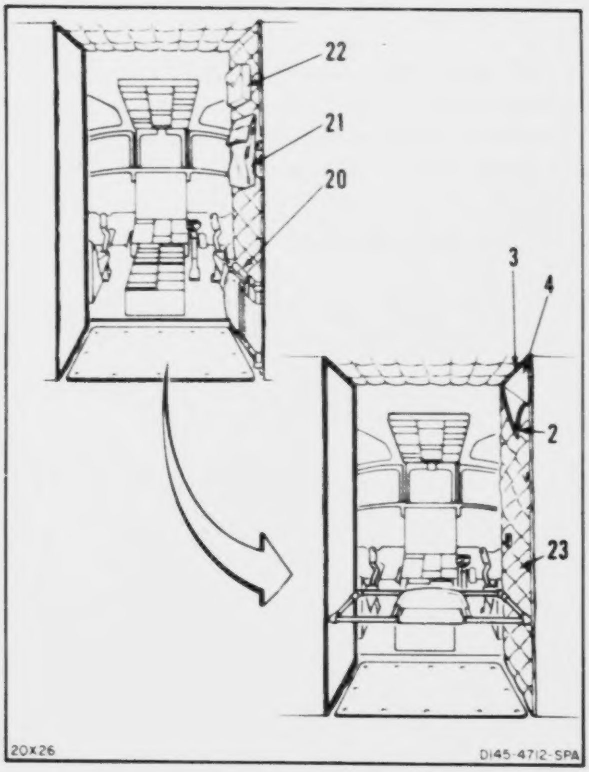
2-107 REMOVE COCKPIT ACOUSTIC BLANKETS (Continued) 2-107

REMOVE PASSAGEWAY BLANKETS

16. **Pull back edges of left passageway blanket (19) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).
17. **Remove blanket (19).**


4
2
3
19
20x26
D145-4711-SPA

18. Unstow troop commander's seat (20) (Task 2-135).
19. **Remove map case (21).**
20. Remove first-aid kit (22).
21. **Pull back edges of right passageway blanket (23) and separate hook tape (2) on blanket from pile tape (3)** on structure (4).


22
21
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20x26
D145-4712-SPA

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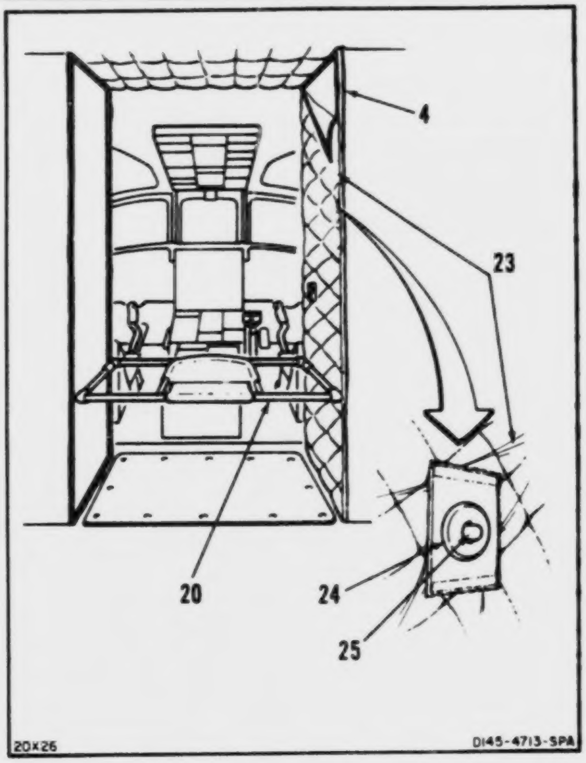
2-107 REMOVE COCKPIT ACOUSTIC BLANKETS (Continued) 2-107

NOTE

Disconnect fasteners from studs by pulling back that part of blanket around studs.

22. **Disconnect four socket fasteners (24) on blanket (23) from studs (25)** on structure (4).
23. **Remove blanket (23).**
24. Stow troop commander's seat (20) (Task 2-134).


4
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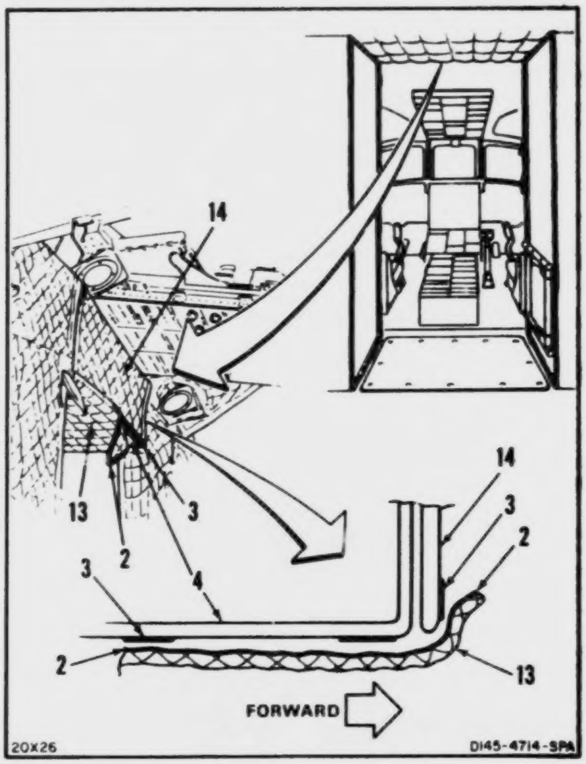
20X26
DI45-4713-SPA

25. **Pull back edge of passageway forward overhead blanket (13) and separate hook tape (2) on blanket from pile tape (3)** on bulkhead center blanket (14) and structure (4).
26. **Remove blanket (13).**


14
13
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FORWARD
20X26
DI45-4714-SPA

GO TO NEXT PAGE

2-107 REMOVE COCKPIT ACOUSTIC BLANKETS (Continued) 2-107

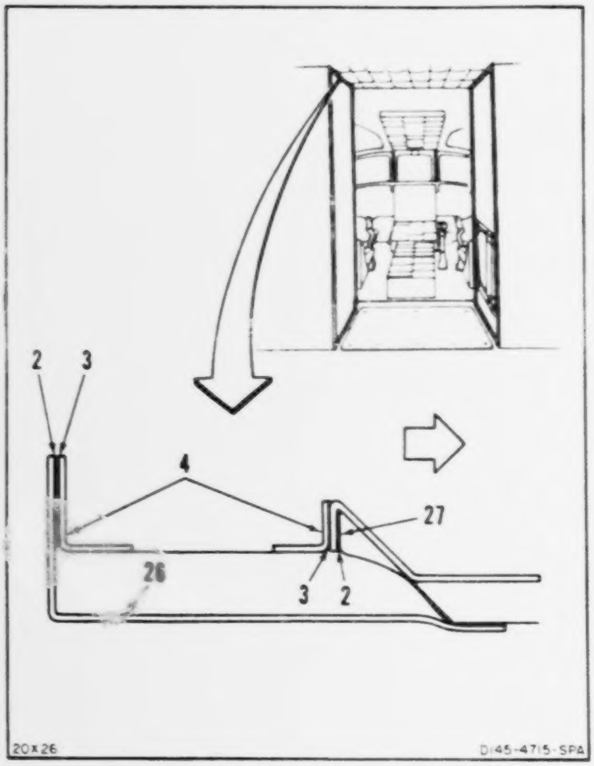
27 **Pull back edge of passageway aft overhead blanket (26) and separate hook tape (2) from pile tape (3)** on structure (4).

28 **Pull back inner flap (27) on blanket (26) and separate hook tape (2) on flap from pile tape (3)** on structure (4).

29 **Remove blanket (26).**

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-108 INSTALL COCKPIT ACOUSTIC BLANKETS 2-108

INITIAL SETUP

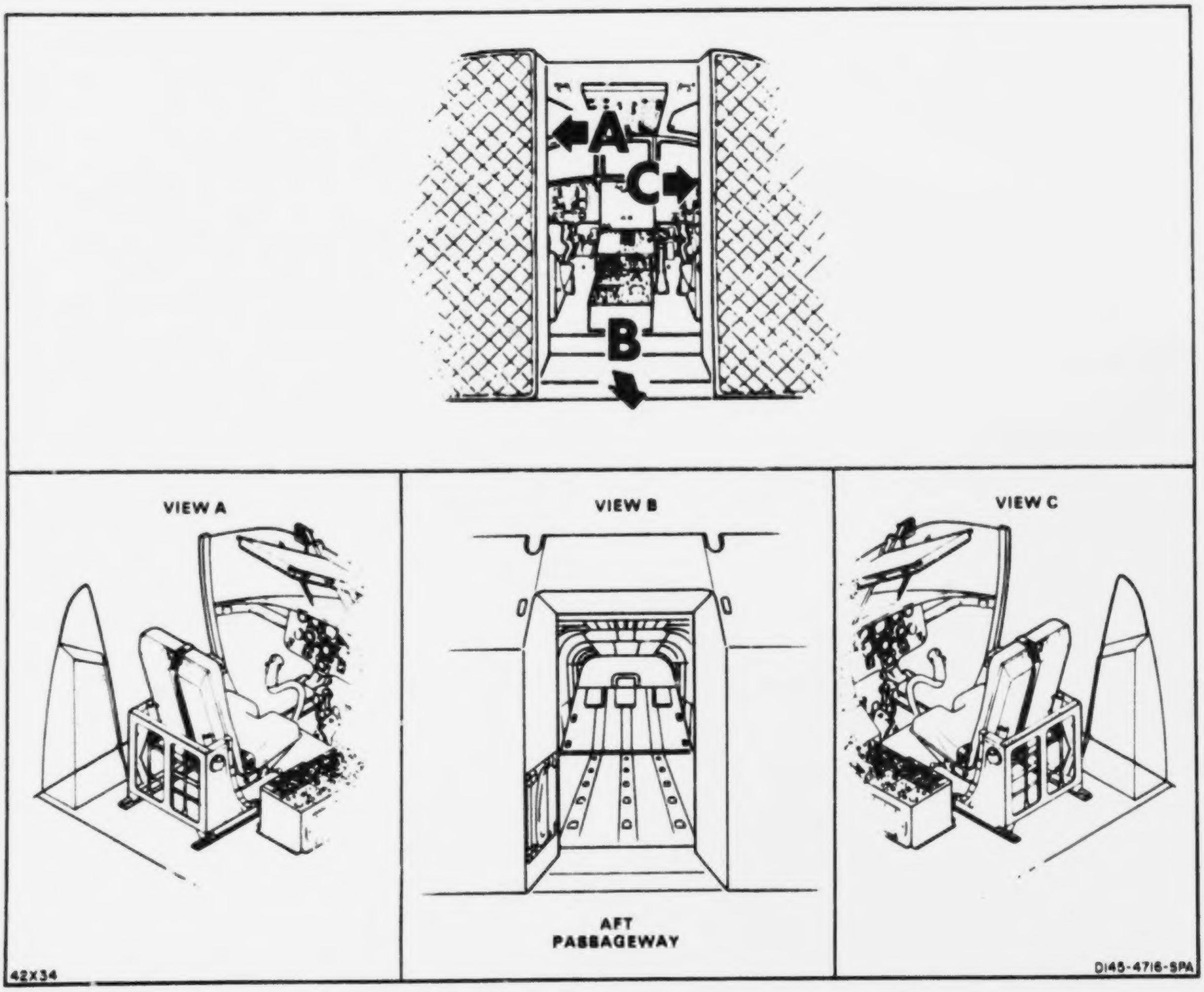
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P
Task 2-135
Task 2-134


A
C
B
VIEW A
VIEW B
VIEW C
AFT PASSAGEWAY
42X34
D145-4716-SPA

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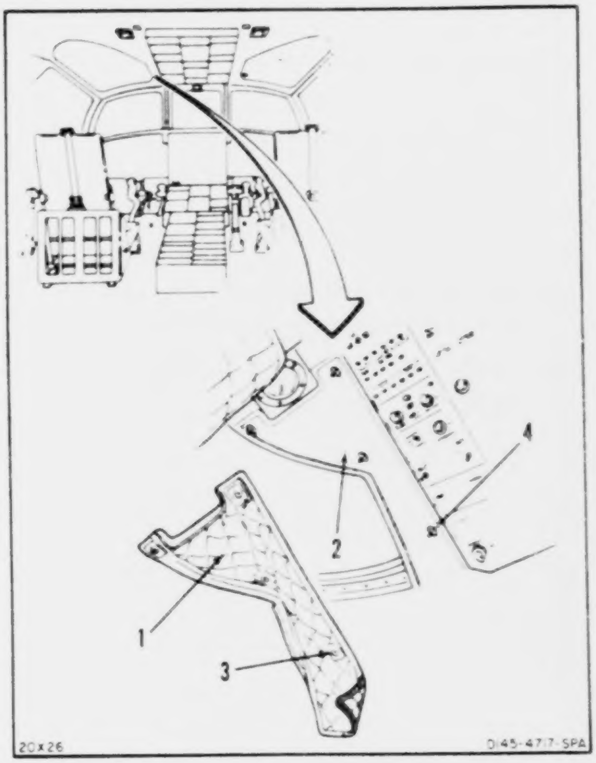
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108

INSTALL OVERHEAD BLANKETS

NOTE

Procedure is same to install overhead acoustic blanket on pilot's or copilot's side. Installation of copilot's blanket is shown here.

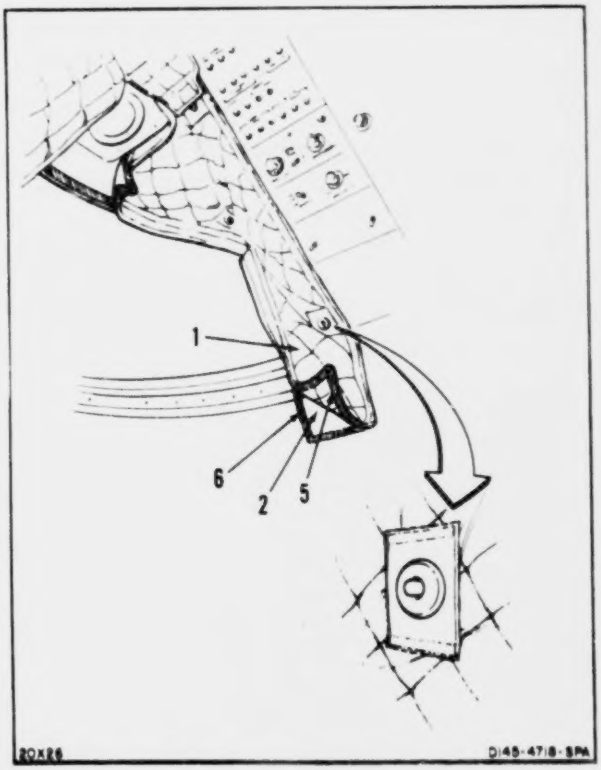
1. **Position overhead blanket (1) on structure (2)** with socket fasteners (3) aligned with studs (4).
2. **Press four socket fasteners (3) on studs (4).**



NOTE

To make blanket fit tight, hold blanket at edge and pull away from stud.

3. **Press hook tape (5)** on blanket (1) **to pile tape (6)** on structure (2).
4. **Press edges of blanket (1) tight against structure (2).** Make sure there are no gaps between blanket and structure.



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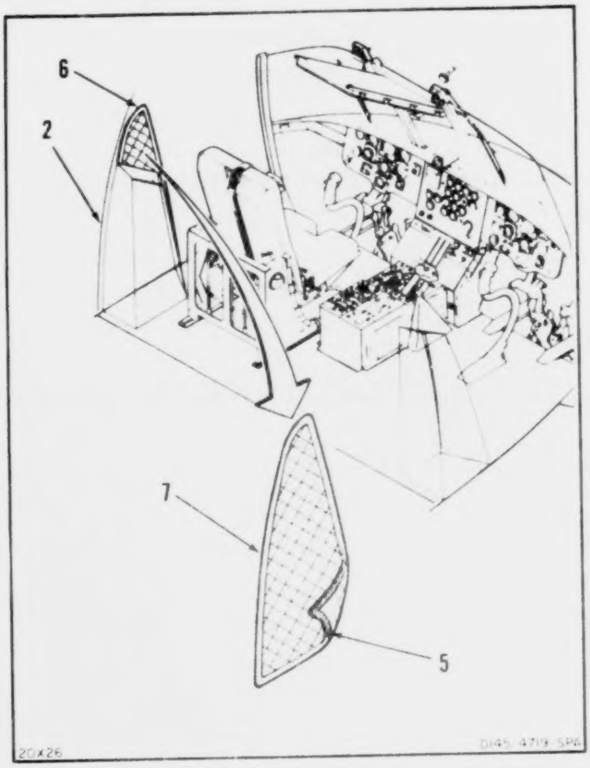
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108

INSTALL SIDE BLANKETS

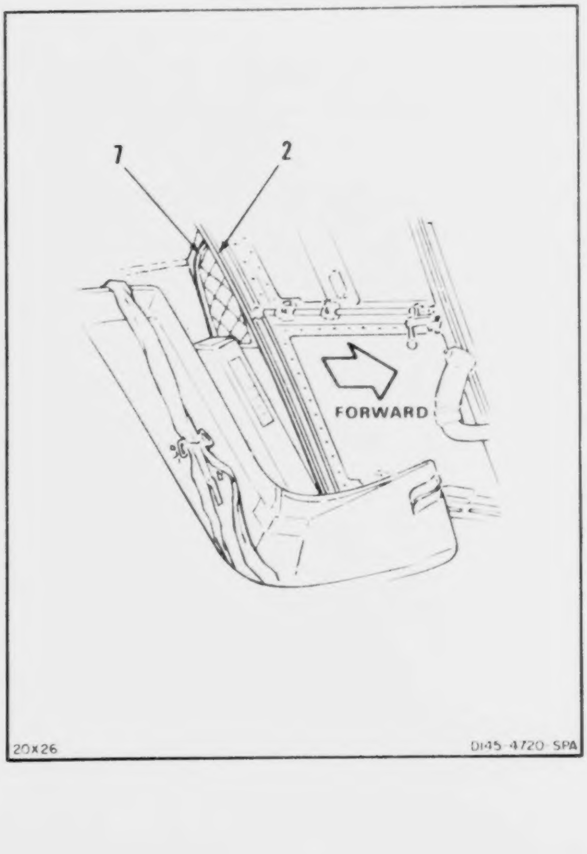
NOTE

Procedure is same to install side acoustic blanket on pilot's or copilot's side. Installation of copilot's blanket is shown here.

5. **Position side blanket (7)** with edge of blanket aligned with edge of structure (2).
6. **Press hook tape (5)** on blanket (7) **to pile tape (6)** on structure (2).



7. **Press edges of blanket (7) tight against structure (2).** Make sure there are no gaps between blanket and structure.

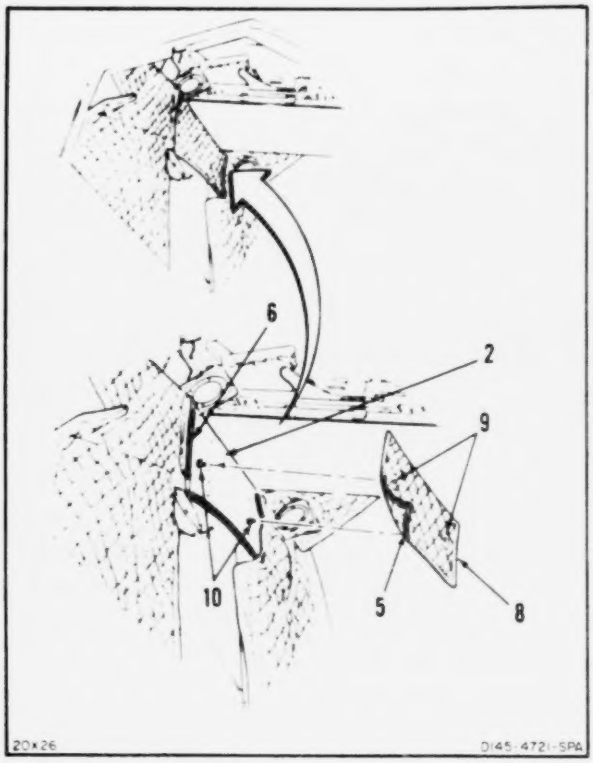


GO TO NEXT PAGE

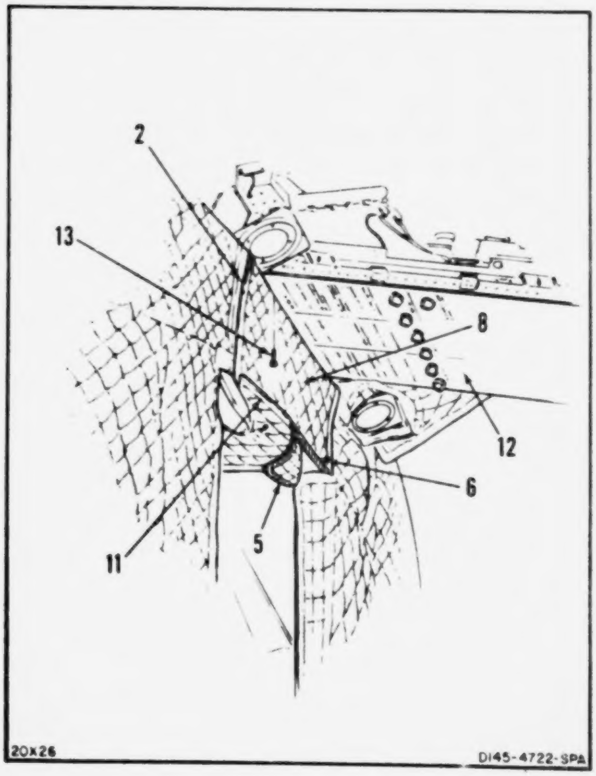
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108

INSTALL BULKHEAD BLANKETS

8. **Position bulkhead center blanket (8)** on structure (2) with socket fasteners (9) aligned with studs (10).
9. **Press three fasteners (9) on studs (10).**
10. **Press hook tape (5)** on blanket (8) **to pile tape (6)** on structure (2).



11. **Press edges of blanket (8) tight against structure (2).** Make sure there are no gaps between blanket and structure.
12. **Press hook tape (5) on forward overhead passage blanket (11) to pile tape (6)** on blanket (8).
13. **Press edge of blanket (11) tight against blanket (8).** Make sure there are no gaps between blanket and structure.
14. **Raise overhead switch panel (12) and install two bolts (13).**



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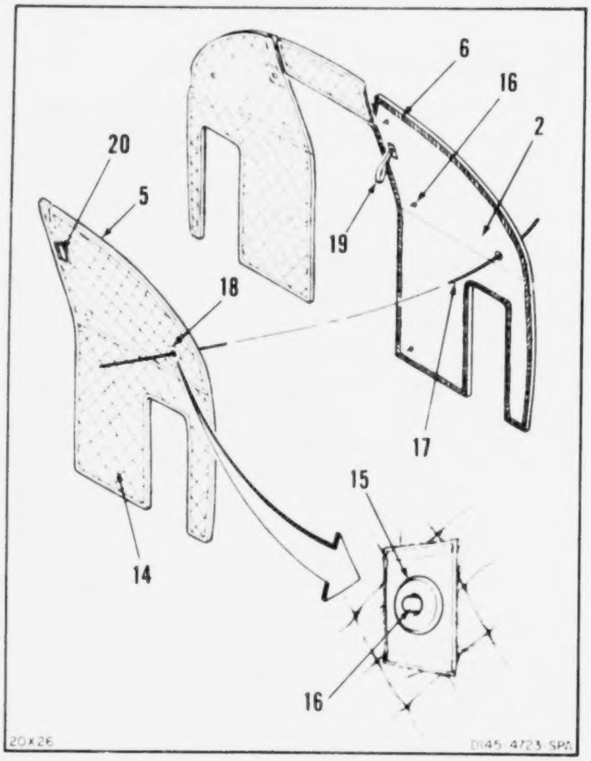
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108



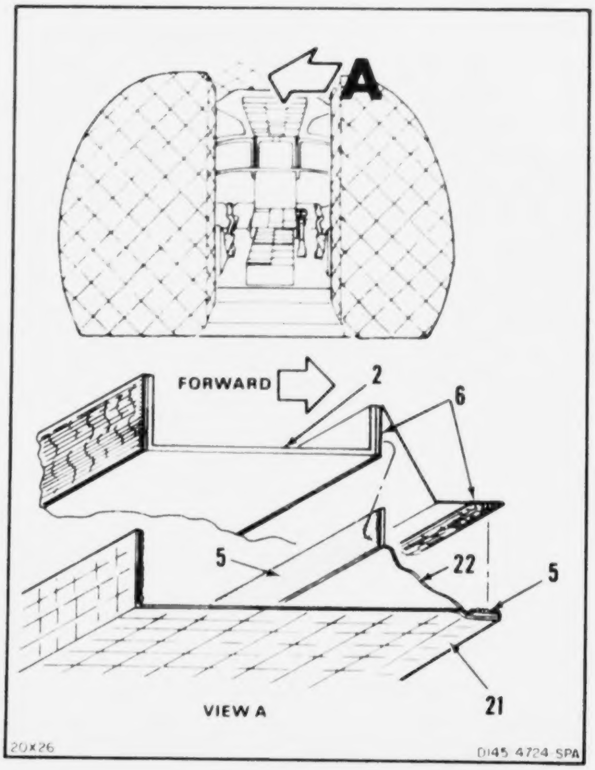
NOTE

Procedure is same to install acoustic blanket on pilot's or copilot's side of cockpit bulkhead. Installation of copilot's blanket is shown here.

15. **Position bulkhead left blanket (14) on structure (2)** with socket fasteners (15) aligned with studs (16).
16. **Press six fasteners (15) on studs (16).**
17. Pull interphone cable (17) through hole (18). Pull strap (19) through hole (20).
18. **Press hook tape (5)** on blanket (14) **to pile tape (6)** on structure (2).
19. **Press edges of blanket (14) tight against structure (2).** Make sure there are no gaps between blanket and structure.

INSTALL PASSAGEWAY BLANKETS

20. **Position aft overhead passageway blanket (21)** on structure (2) with flap (22) aligned with structure.
21. **Press hook tape (5)** on flap (22) **to pile tape (6)** on structure (2).
22. **Press edges of flap (22) tight against structure (2).** Make sure there are no gaps between blanket and structure.



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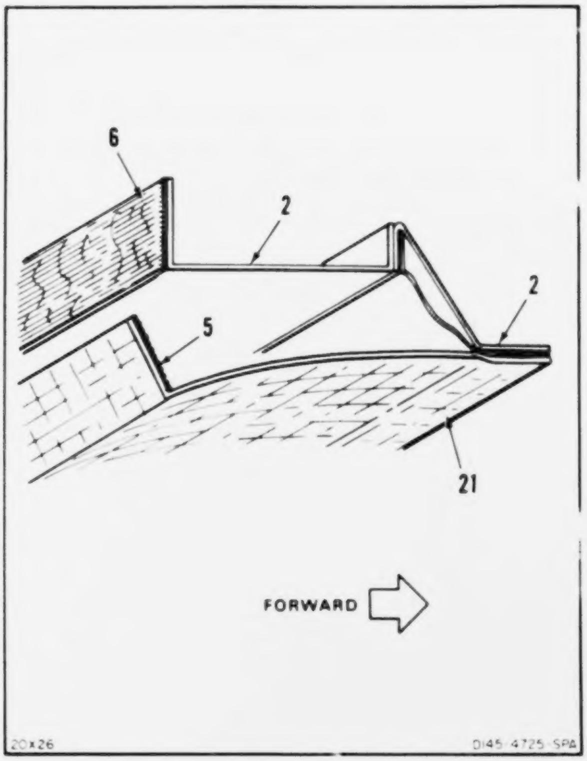
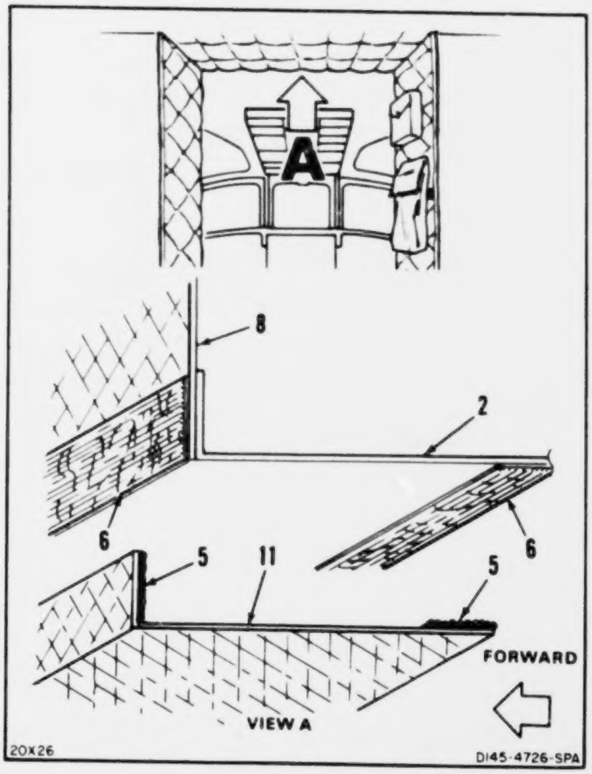
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108

23. **Press hook tape (5)** on blanket (21) **to pile tape (6)** on structure (2).
24. **Press edges of blanket (21) tight against structure (2).** Make sure there are no gaps between blanket and structure.


6
2
2
5
21
FORWARD
20x26
DI45-4725-SPA

25. **Position forward overhead passageway blanket (11)** on structure (2) with hook tape (5) on blanket aligned with pile tape (6) on structure and on bulkhead center blanket (8).
26. **Press hook tape (5)** on blanket (11) **to pile tape (6)** on structure (2) and blanket (8).
27. **Press edges of blanket (11) tight against blanket (8) and structure (2).** Make sure there are no gaps between blanket and structure.


A
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FORWARD
VIEW A
20X26
DI45-4726-SPA

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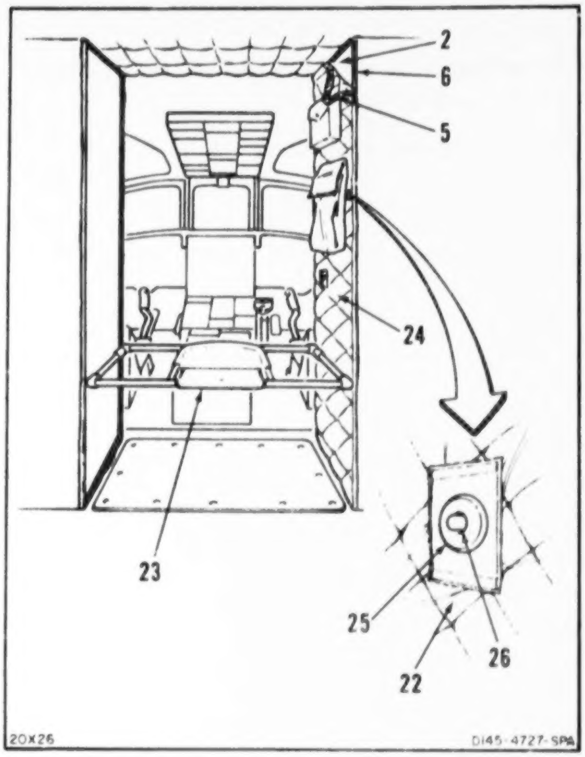
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108

28. Unstow troop commander's seat (23) (Task 2-135)
29. **Position right passageway blanket (24)** on structure (2) with socket fasteners (25) aligned with studs (26).
30. **Press four fasteners (25) on studs (26).**
31. **Press hook tape (5)** on blanket (24) **to pile tape (6)** on structure (2).


2
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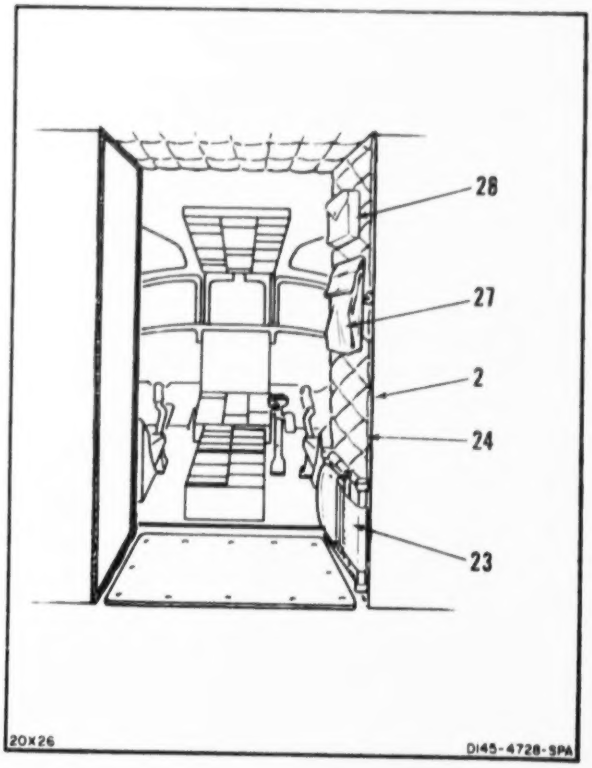
20X26
D145-4727-SPA

32. **Press edges of blanket (24) tight against structure (2).** Make sure there are no gaps between blanket and structure.
33. Stow troop commander's seat (23) (Task 2-134).
34. **Install map case (27).**
35. **Install first-aid kit (28).**


28
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D145-4728-SPA

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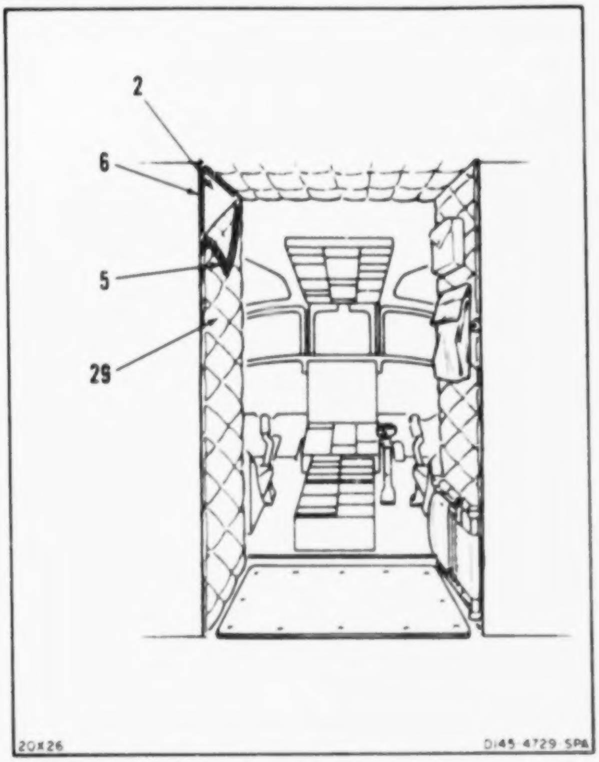
2-108 INSTALL COCKPIT ACOUSTIC BLANKETS (Continued) 2-108



36. **Position left passageway blanket (29) on structure (2)** with edge of blanket aligned with edge of structure.
37. **Press hook tape (5)** on blanket (29) **to pile tape (6)** on structure (2).
38. **Press edges of blanket (29) tight against structure (2).** Make sure there are no gaps between blanket and structure.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-108.1 REMOVE NVG BLACKOUT CURTAIN 2-108.1

INITIAL SETUP

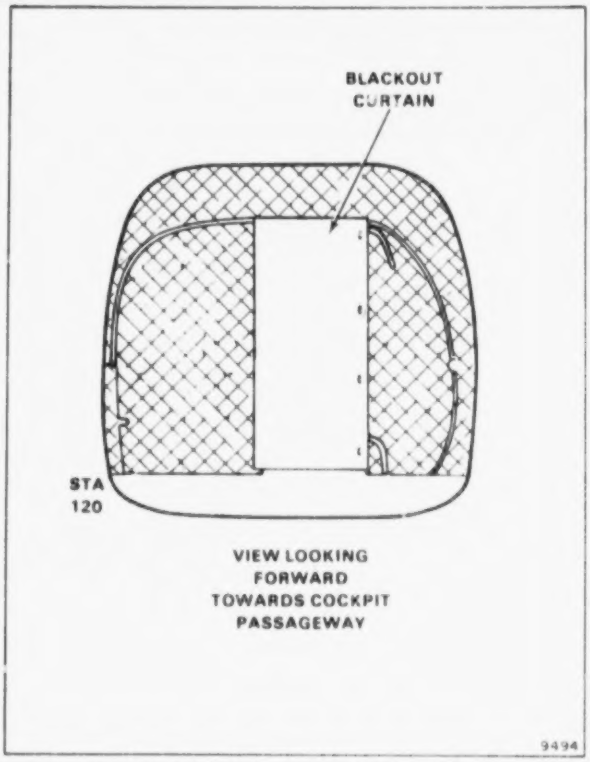
Applicable Configurations:
All

Tools:
None

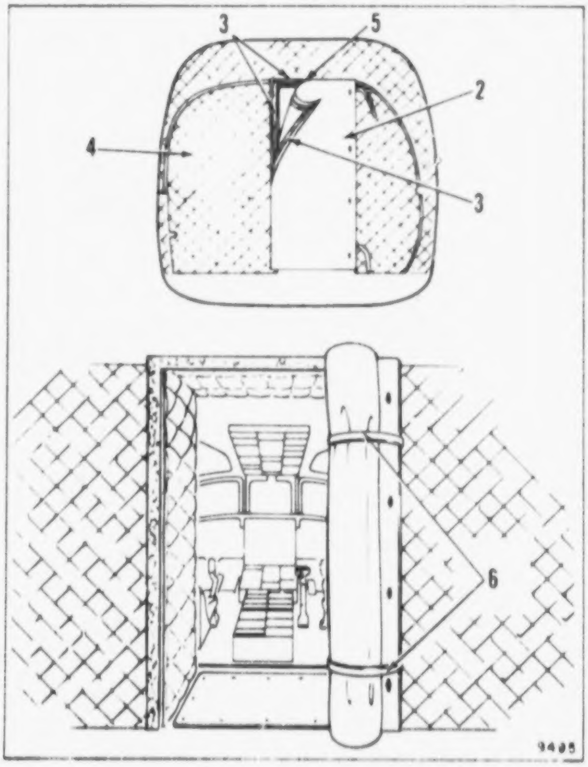
Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


BLACKOUT CURTAIN
STA 120
VIEW LOOKING FORWARD TOWARDS COCKPIT PASSAGEWAY
9494

1. **Separate hook tape (1)** at top and left side of curtain (2) from pile tape (3) on acoustic blankets (4) and (5).
2. **Roll curtain (2)** back to right side of passageway. **Fasten curtain roll in position** with two straps (6).


3
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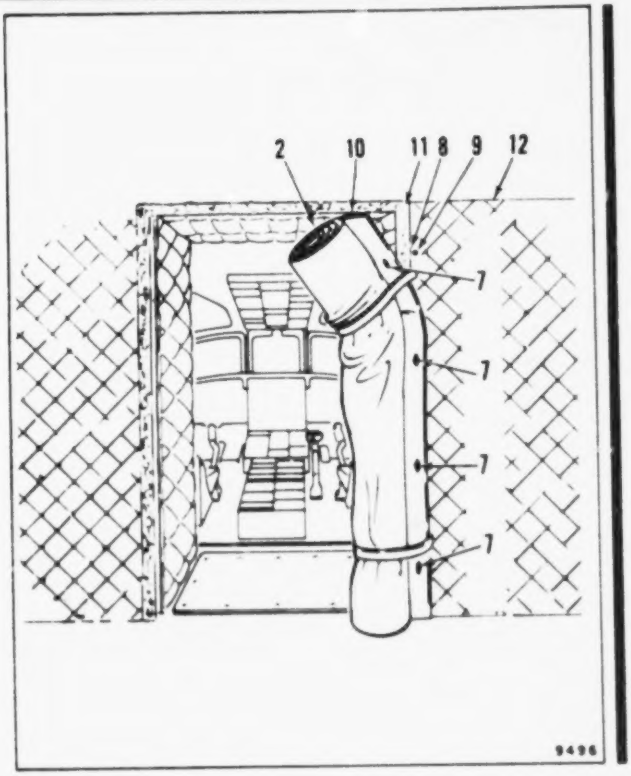
9495

GO TO NEXT PAGE

2-108.1 REMOVE NVG BLACKOUT CURTAIN (Continued) 2-108.1

3. Disconnect four socket fasteners (7) on curtain (2) from studs (8) on structure (9).
4. Separate hook tape (10) on right side of curtain (2) from pile tape (11) on acoustic blanket (12). Remove curtain.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-108.2 INSTALL NVG BLACKOUT CURTAIN 2-108.2

INITIAL SETUP

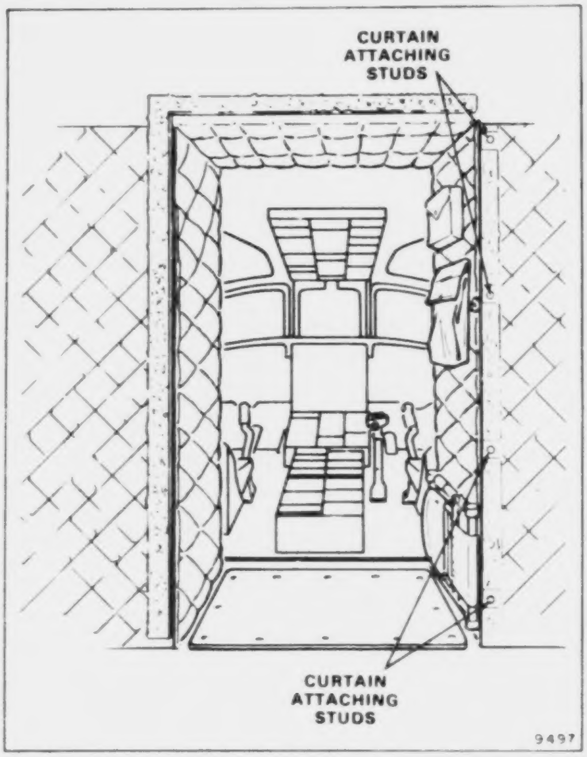
Applicable Configurations:
All

Tools:
None

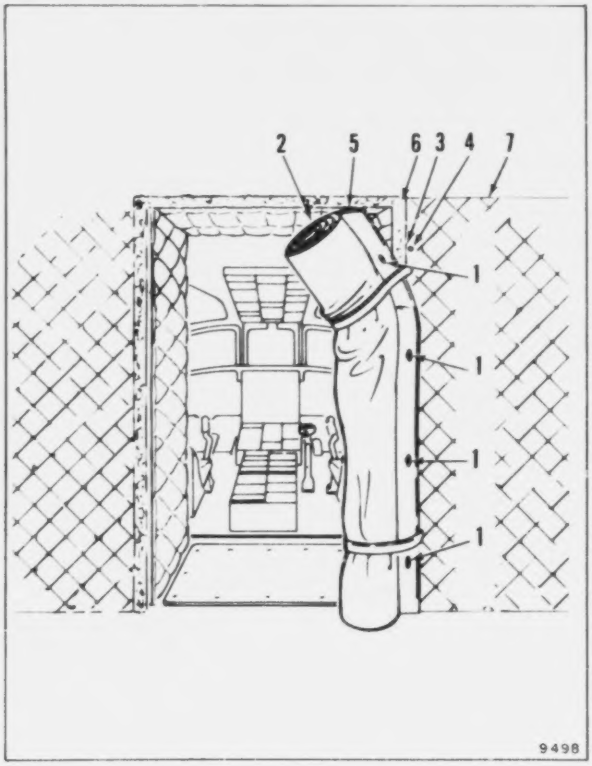
Materials:
None

Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-23P


CURTAIN ATTACHING STUDS
CURTAIN ATTACHING STUDS
9497

1. Align four socket fasteners (1) of curtain (2) with studs (3) of structure (4). Press fasteners on studs.
2. Press hook tape (5) of curtain (2) to pile tape (6) of acoustic blanket (7).


2
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6
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9498

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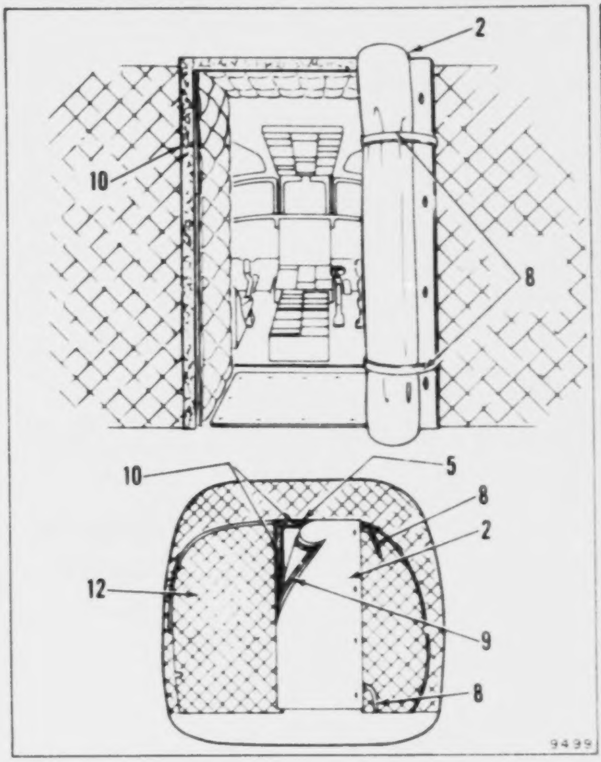
2-108.2 INSTALL NVG BLACKOUT CURTAIN (Continued) 2-108.2

3. Separate leading end of two steps (8) from fixed end by pulling back tape.
4. Roll curtain (2) to left side of passageway. Press hook tape (9) of curtain against pile tape (10) of acoustic blanket (11) and (12).
5. Check that there are no gaps between curtain (2) and acoustic blankets (11 and 12).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-109 TEST PILOT'S OR COPILOT'S SEAT

INITIAL SETUP

Applicable Configurations:
All

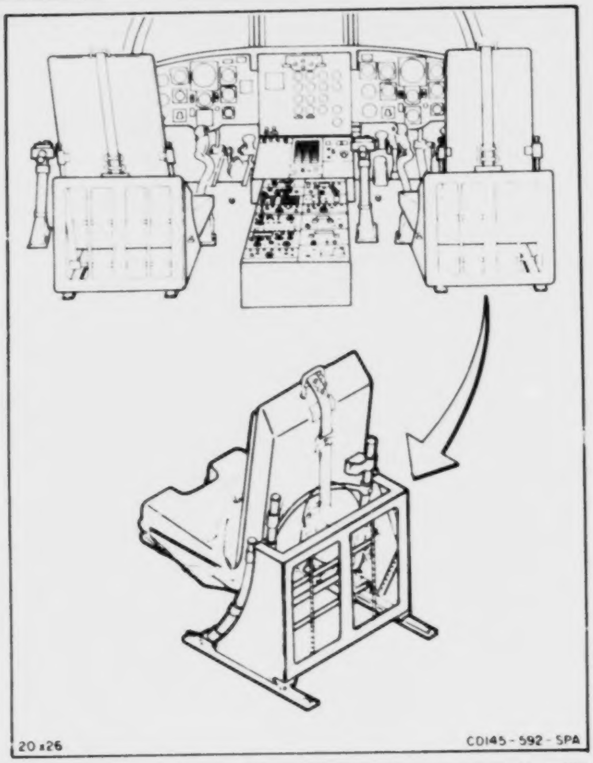
Tools:
None

Materials:
None

Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-T

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

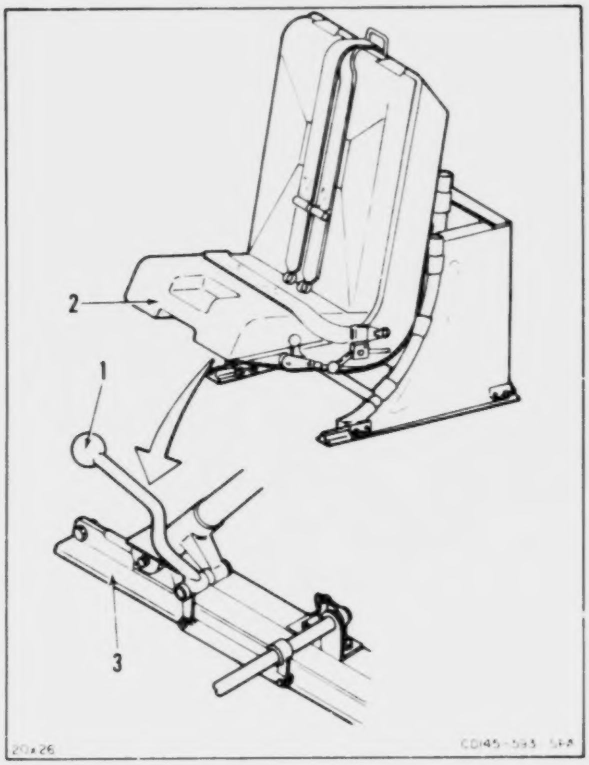


NOTE

Test procedures must be done while sitting in pilot's or copilot's seat.

TEST FORWARD AND AFT TRAVEL

1. **Pull up and hold adjustment handle (1).**
2. **Slide seat (2) on rails (3)** forward and aft as far as it will go. If seat is loose or binds, adjust seat (Task 2-113).



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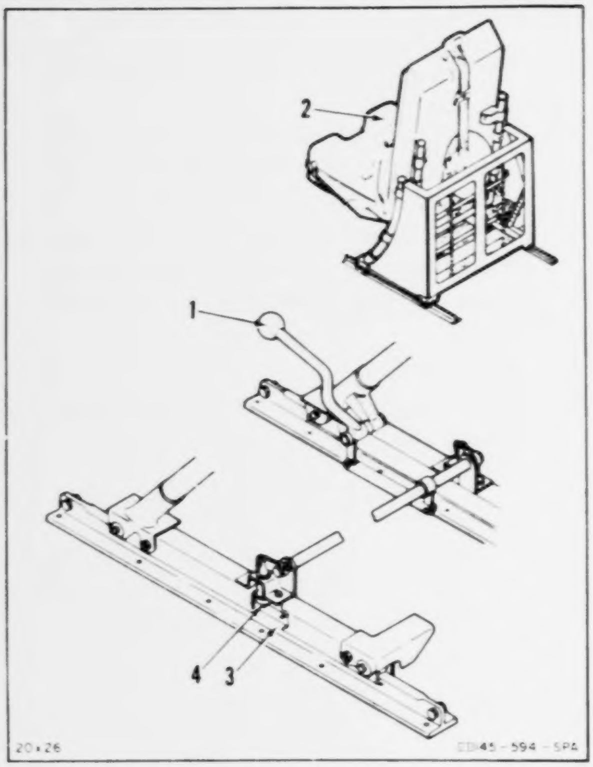
2-109 TEST PILOT'S OR COPILOT'S SEAT (Continued) 2-109

3. **Let go of handle (1). Check that pins (4) lock seat (2)** on rail (3).
4. Repeat steps 1. thru 3. for all positions going forward and aft.

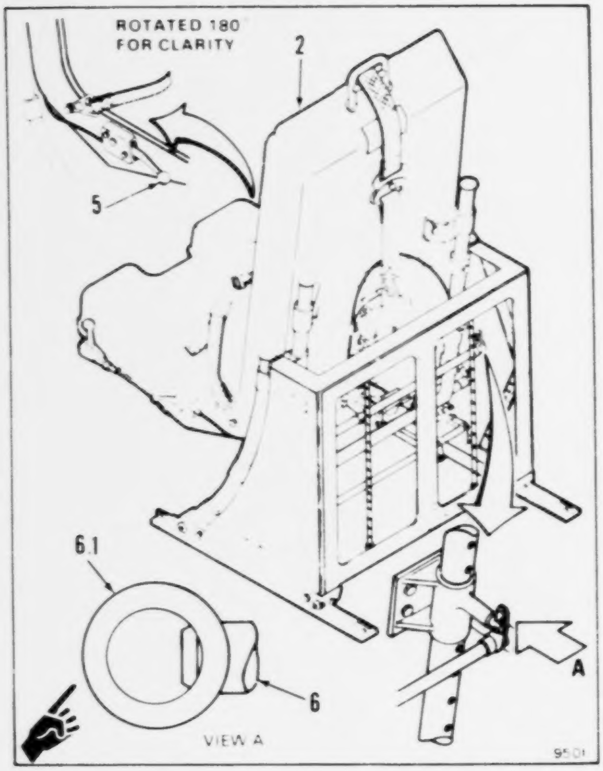


TEST VERTICAL TRAVEL

5. Take weight off seat (2). **Pull up and hold vertical adjustment handle (5).**
6. **Check that seat (2) moves easily up and down.** If it does not move easily, troubleshoot (TM 55-1520-240-T). Let go of handle (5).
7. **Pull up and hold handle (5).**
8. **Move seat (2) all way up** by pushing feet against floor and shoulders against back of seat. Let go of handle (5).
9. **Pull up and hold handle (5).** Let seat (2) come down slowly and let go of handle.

9.1 **Check that pins (6) lock in place** with normal shifting of body weight on pins. Look inside lower end of adjustment fitting (6.1). Check that chamfer of pin (6) protrudes completely through wall of fitting.

10. Repeat steps 5. thru 9.1. for all positions going down and up.



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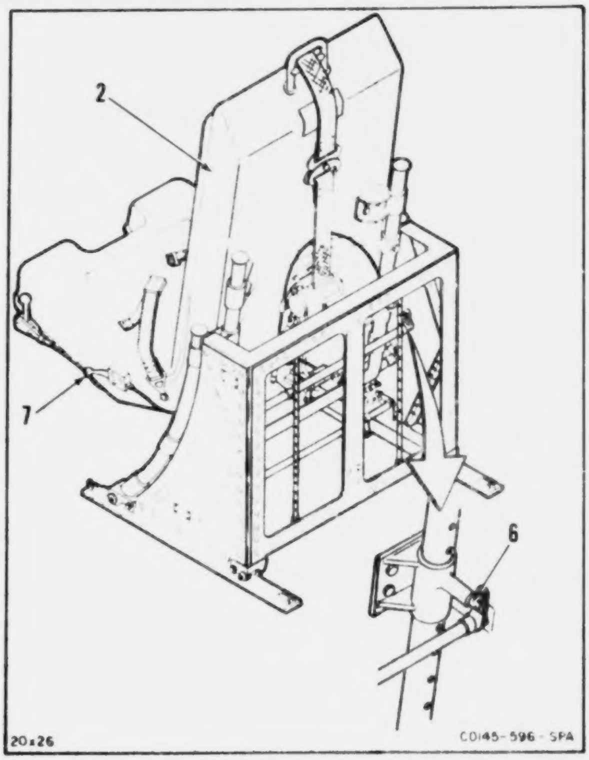
TEST NORMAL AND RECLINE POSITION

11. **Pull up and hold rotation adjustment handle (7).**
12. **Move seat (2) all way up** and check that seat moves easily in full recline or normal position. **Let go of handle (7).**
13. **Pull up on handle (7). Push feet against floor and shoulders against back of seat (2).** As seat starts down, let go of handle.
14. Repeat step 9.1.
15. Repeat steps 11. thru 14. for all normal and recline positions.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-110 CLEAN PILOT'S OR COPILOT'S SEAT 2-110

INITIAL SETUP

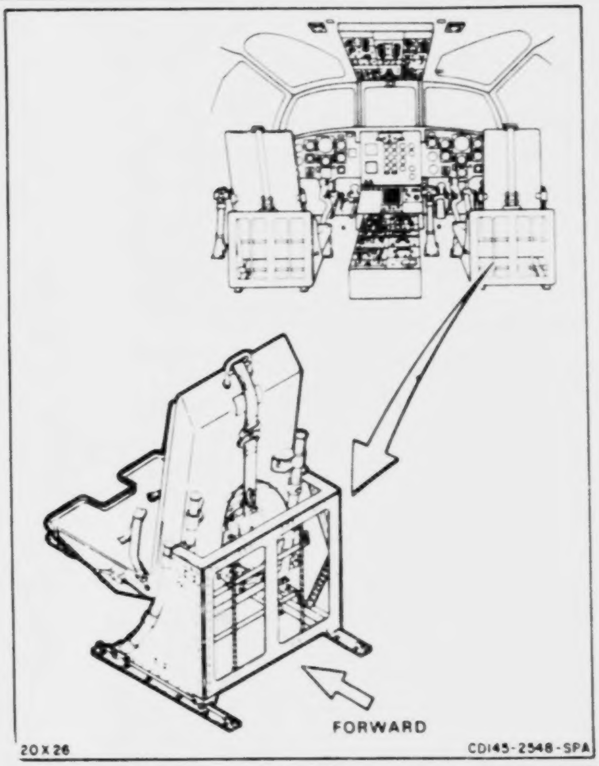
Applicable Configurations:
All

Tools:
Container, Two Quart

Materials:
Brush (E85)
Cloths (E120)
Gloves (E186)
Dry Cleaning Solvent (E162)
Water

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Seat Cushions Removed (Task 2-128)



WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

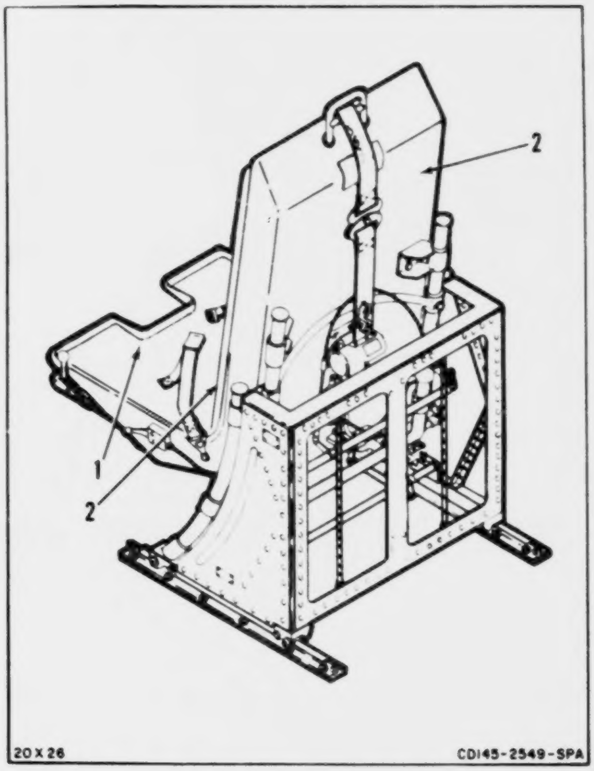
NOTE

Procedure is same for pilot's or copilot's seat. Pilot's seat is shown here.

1. **Clean seat bucket (1)** using brush (E85) and dry cleaning solvent (E162). Wipe seat bucket dry with cloths (E120). Wear gloves (E186).
2. **Clean covers (2)** using cleaning cloths (E120) damp with water. Wipe covers dry with cloths (E120).

FOLLOW-ON MAINTENANCE:
None

END OF TASK



2-111 REMOVE PILOT'S OR COPILOT'S SEAT 2-111

INITIAL SETUP

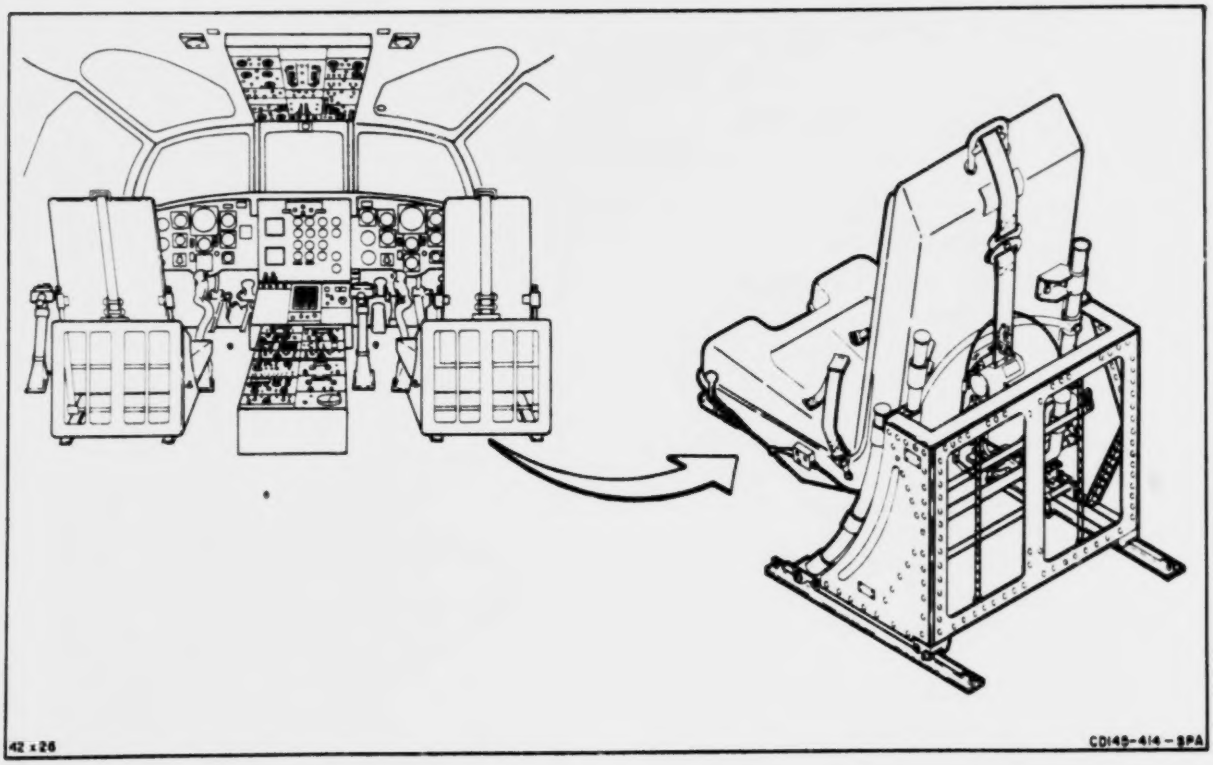
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Wood Blocks, 2 inch x 4 inch x 36 inch (2)

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Seat Adjusted Forward (Task 2-115)



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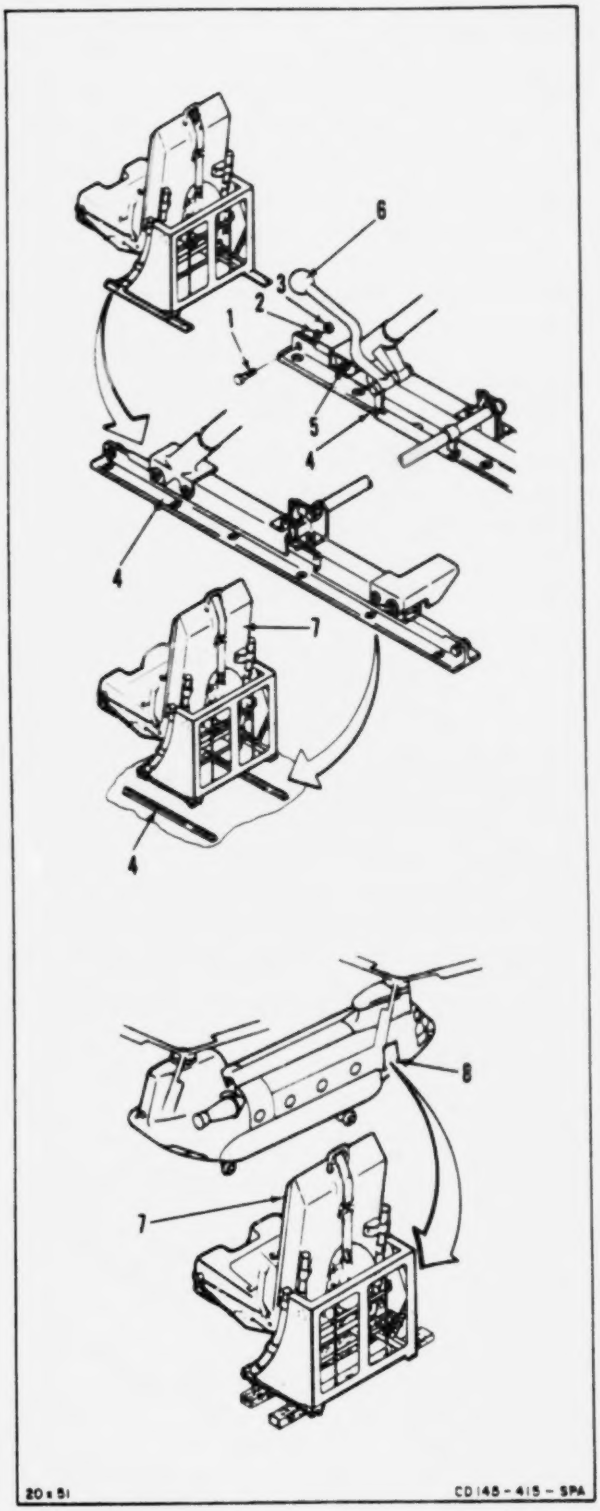
2-111 REMOVE PILOT'S OR COPILOT'S SEAT (Continued) 2-111



NOTE

Procedures are same for removing pilot's or copilot's seat. Pilot's seat removal shown here.

1. **Remove two stop bolts (1), washers (2), and nuts (3) from forward end of both seat rails (4).**
2. **Loosen two adjustment bolts (5).**
3. **Pull up and hold adjustment handle (6).**
4. **Slide seat (7) forward** until clear of seat rails (4).
5. **Release handle (6).**

CAUTION

Pilot's seat can damage instruments if it hits console. Move seat slowly and carefully to prevent damage.

6. **With helper lift seat (7) out of helicopter** through cabin door opening (8).
7. Place seat (7) on wood blocks.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-112 REMOVE PILOT'S OR COPILOT'S SEAT RAILS 2-112

INITIAL SETUP

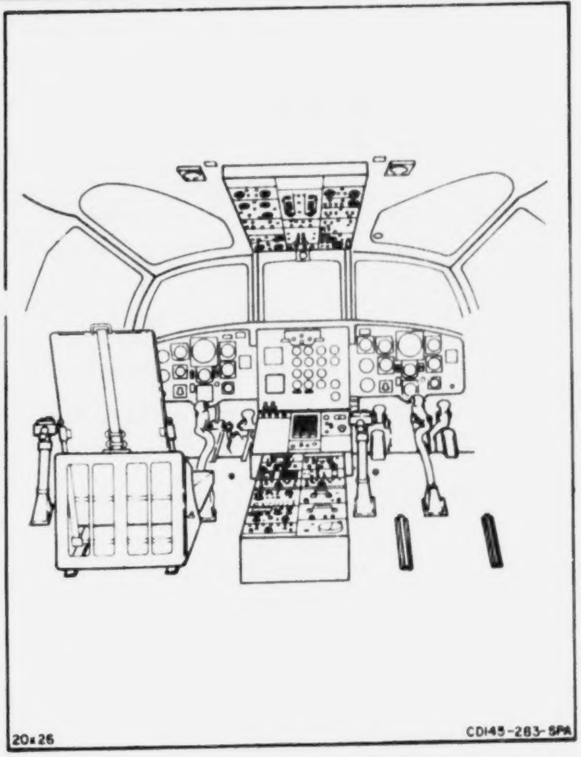
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Pilot's or Copilot's Seat Removed (Task 2-111)



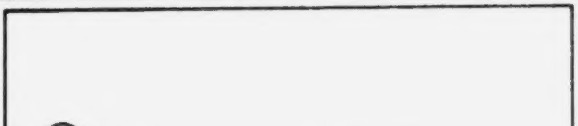
NOTE

Procedures are same for removing pilot's or copilot's seat rails. Pilot's side is shown here.

1. **Remove 12 screws (1)** from each rail (2).
2. **Remove rails (2).**

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-113 INSTALL PILOT'S OR COPILOT'S SEAT RAILS 2-113

INITIAL SETUP

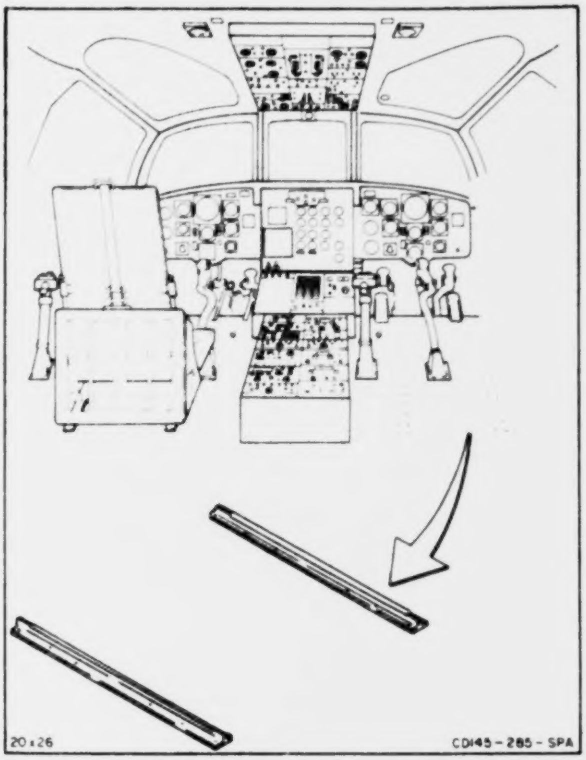
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P



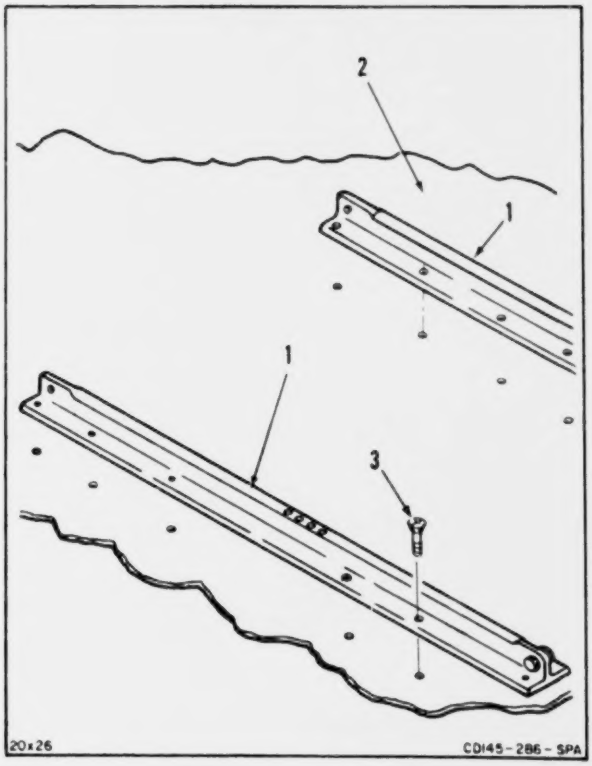
NOTE

Procedures are same for installing pilot's or copilot's seat rails. Pilot's side is shown here.

1. **Position seat rail (1)** on cockpit floor (2).
2. Align screw holes in rail (1) and cockpit floor (2).
3. **Install 12 screws (3)** through holes in rail (1) and floor (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-114 INSTALL PILOT'S OR COPILOT'S SEAT 2-114

INITIAL SETUP

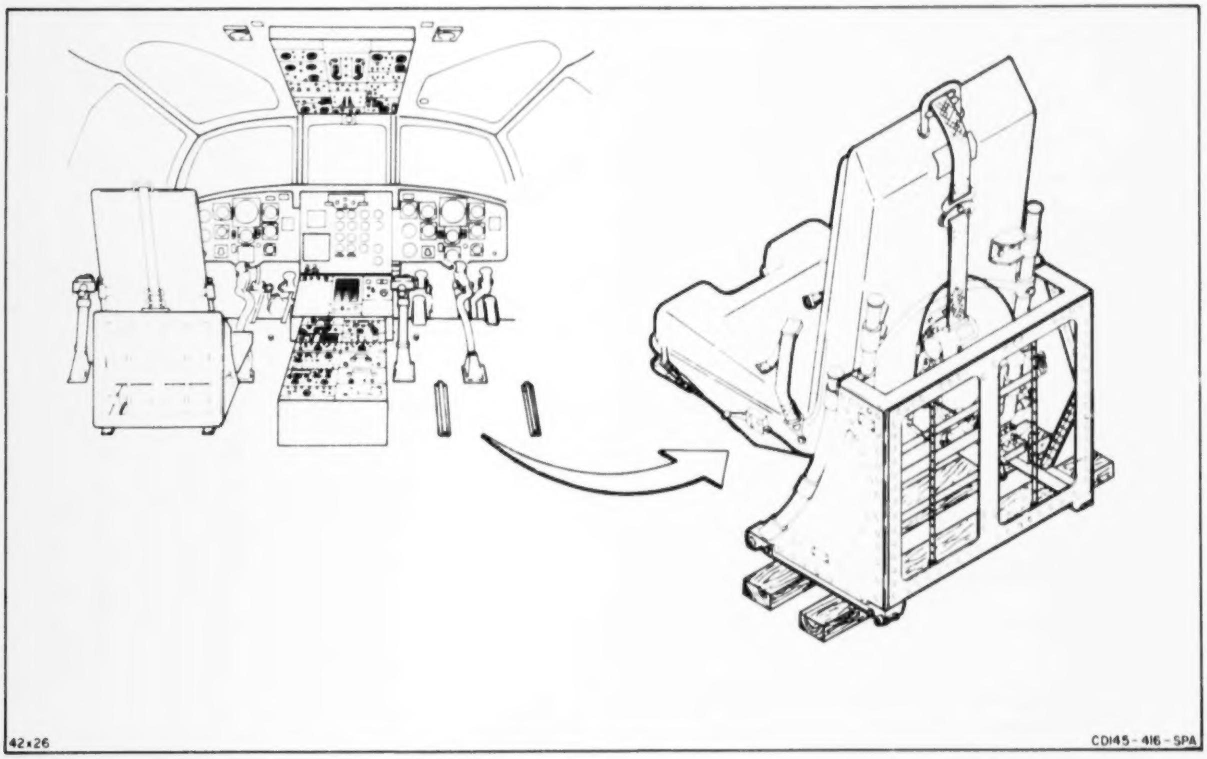
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

References:
TM 55-1520-240-23P



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2-114 INSTALL PILOT'S OR COPILOT'S SEAT (Continued) 2-114

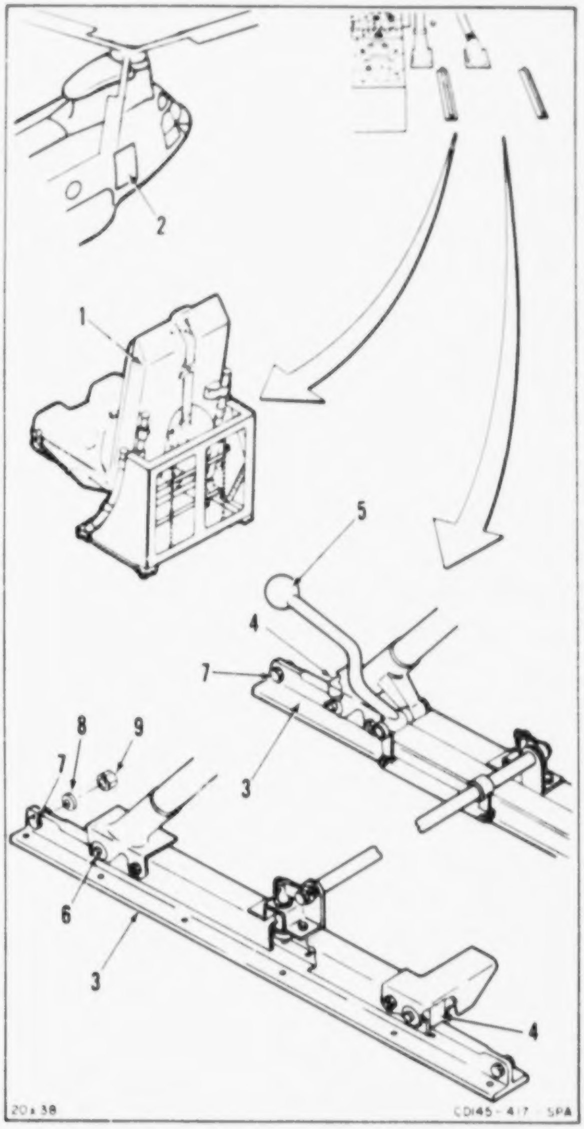
NOTE

Procedures are same for installing pilot's and copilot's seat. Pilot's seat is shown here.

CAUTION

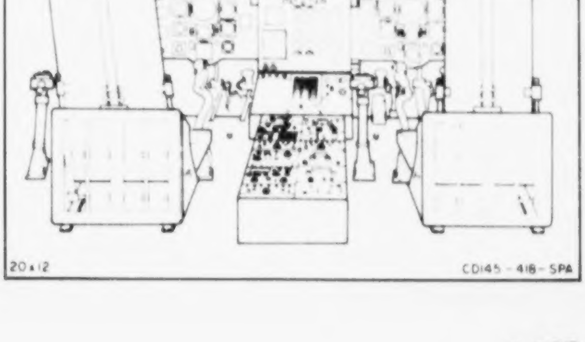
Seat rail can damage instruments if it hits console. Move seat slowly and carefully to prevent damage.

1. Have helper aid in moving seat (1) into cockpit through cabin opening (2).
2. **Place seat (1) on forward end of two rails (3).**
3. Make sure sliders (4) are positioned properly on rails (3).
4. **Pull up and hold adjust handle (5).**
5. Slide seat (1) back until sliders (4) clear stop bolt holes in forward end of rails (3).
6. **Tighten two slider adjustment bolts (6).**
7. **Install bolt (7), washer (8), and nut (9) in forward end of both seat rails (3).**



FOLLOW-ON MAINTENANCE:

Test seat (Task 2-109).



END OF TASK

2-115 ADJUST PILOT'S OR COPILOT'S SEAT 2-115

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

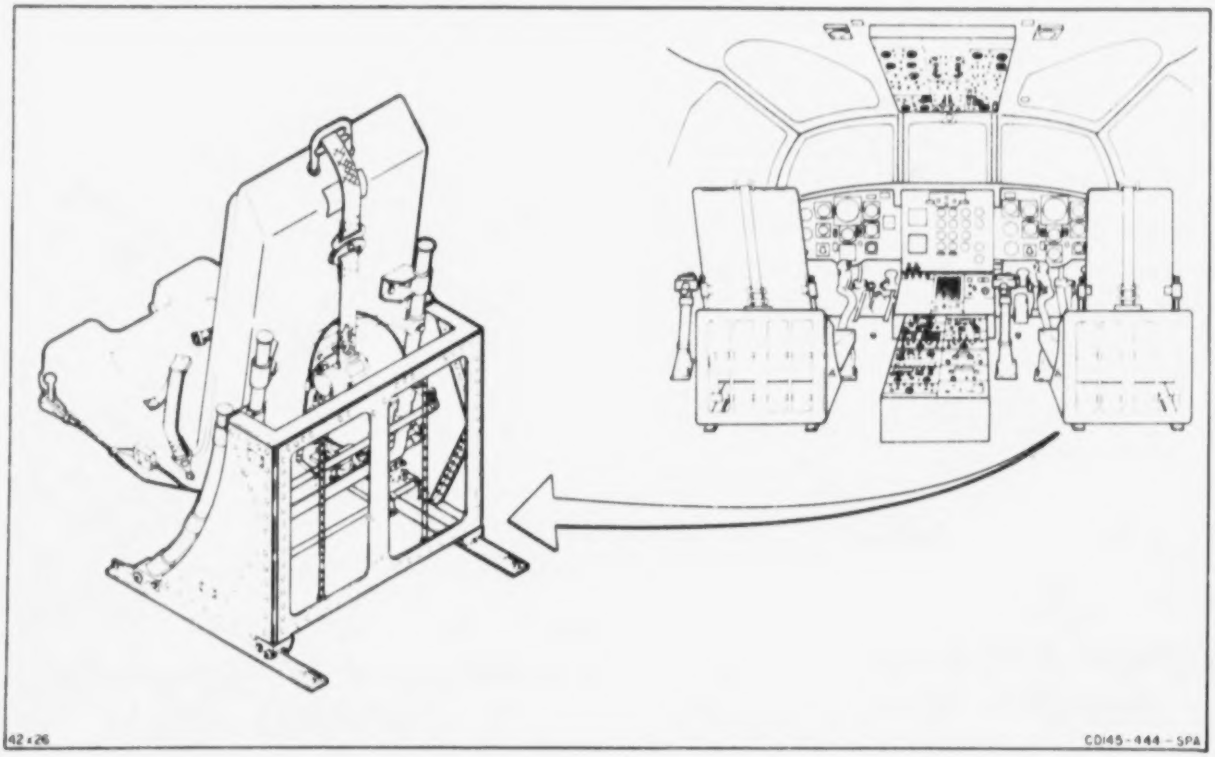
Materials:
None

Personnel Required:

67U10 Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



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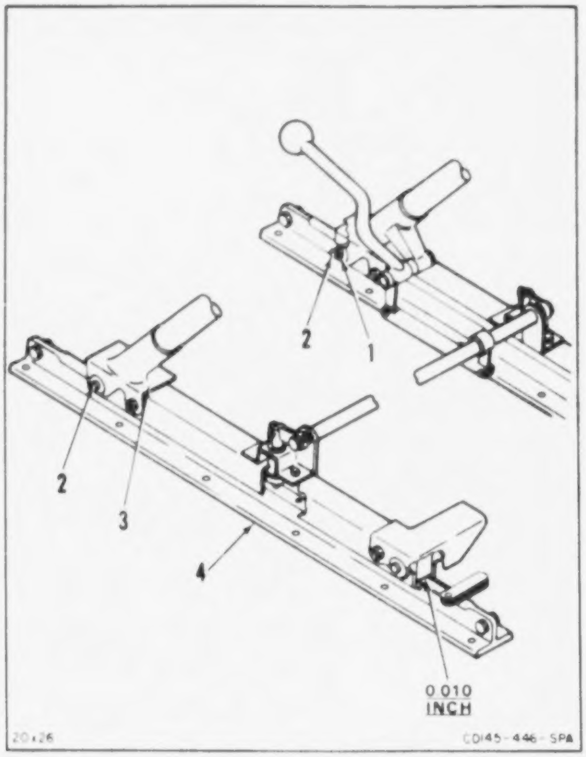
2-115 ADJUST PILOT'S OR COPILOT'S SEAT (Continued) 2-115

NOTE

Procedures are same for adjusting pilot's or copilot's seat. Pilot's seat shown here.

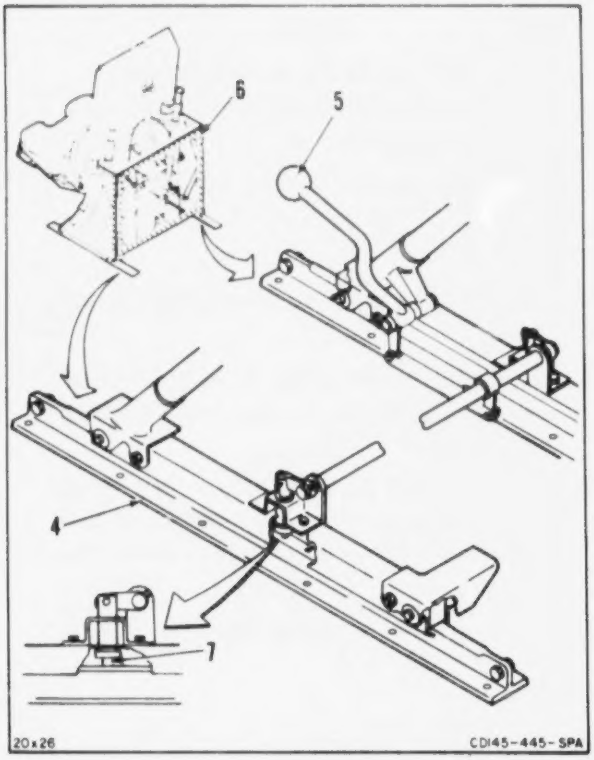
1. **Loosen two nuts (1) on bolts (2)** going through sliders (3). Turn bolts clockwise to reduce clearance. Turn bolts counterclockwise for more clearance.
2. Make sure there is at least a 0.010-inch clearance between sliders (3) and rails (4).
3. **Tighten two nuts (1).**



4. **Pull up and hold adjustment handle (5).**
5. **Slide seat (6) on rails (4)** forward and aft as far as it will go. If there is binding or looseness, repeat steps 1. thru 3.
6. **Let go of adjustment handle (5).** Make sure seat locking pin (7) locks in rail (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-116 TEST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL 2-116

INITIAL SETUP

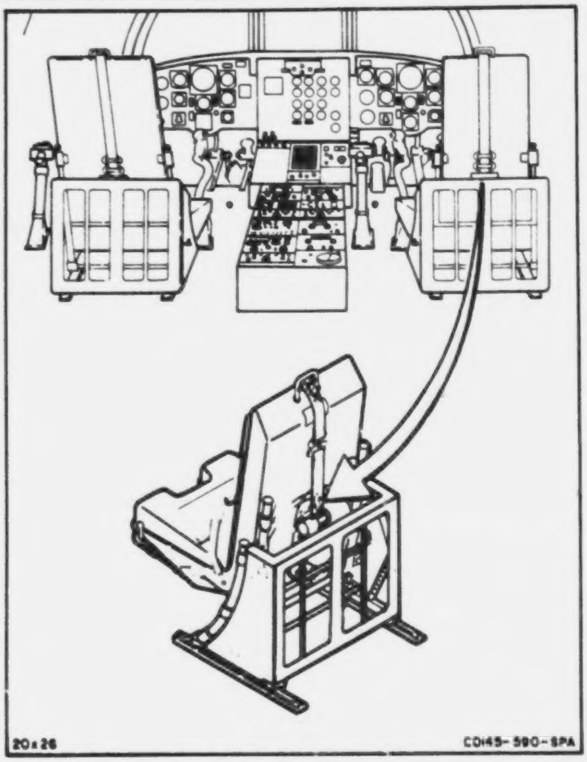
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

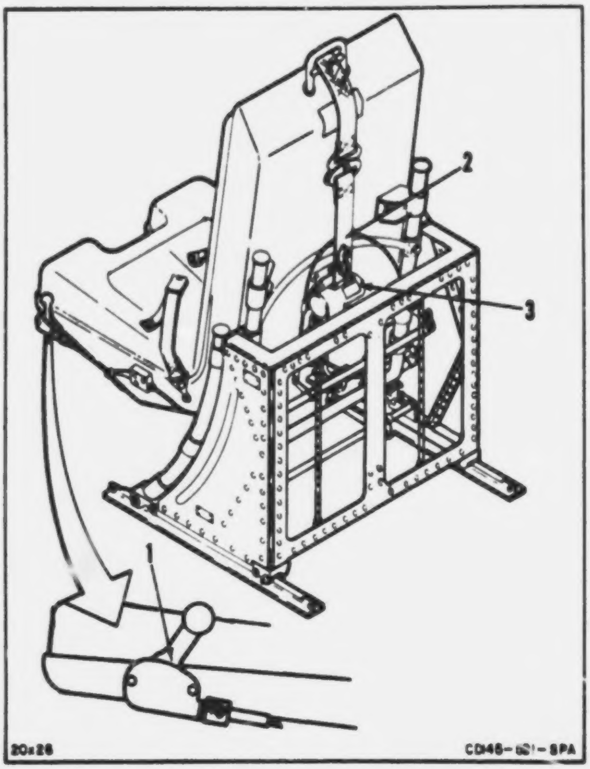
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

- Procedures are same for testing pilot's or copilot's shoulder harness inertia reel.
- Test procedures must be done while sitting in pilot's or copilot's seat.

1. **Set** inertia reel control **handle (1) aft** (automatic).
2. **Move** inertia reel **strap (2) in and out of reel (3) slowly.** Strap should move freely and smoothly.
3. **Pull strap (2) about half way out of reel (3) and hold it. Pull strap hard and fast with other hand. Check that reel locks strap.**
4. Let go of strap (2). Strap should go in and stay locked.



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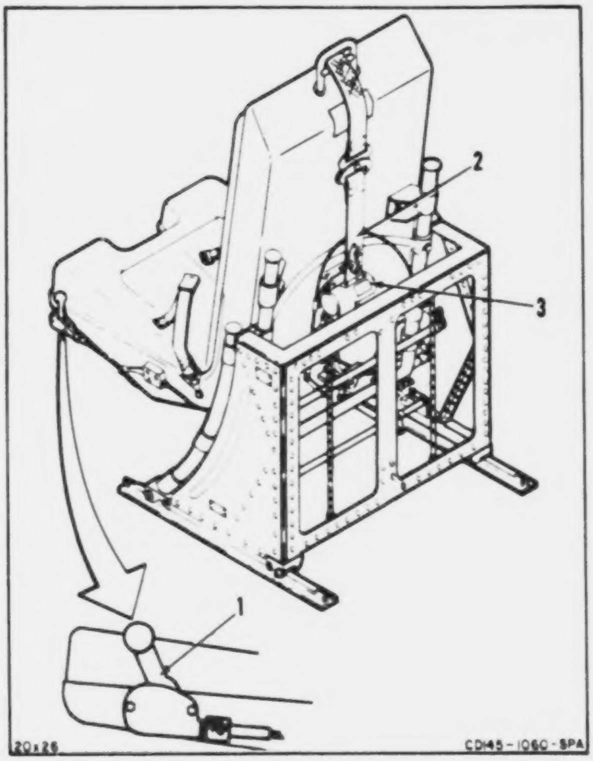
2-116 TEST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (Continued) 2-116

5. **Set handle (1) forward (manual), then aft (automatic).**
6. **Pull strap (2) in and out of reel (3) slowly.** Strap should move freely and smoothly.
7. **Pull strap (2) about half way out of reel (3) and hold it.**
8. **Set handle (1) forward. Pull out on strap (2).** Strap should not come out any further.
9. Let go of strap (2). Strap should wind on reel (3) and stay locked.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-117 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL 2-117

INITIAL SETUP

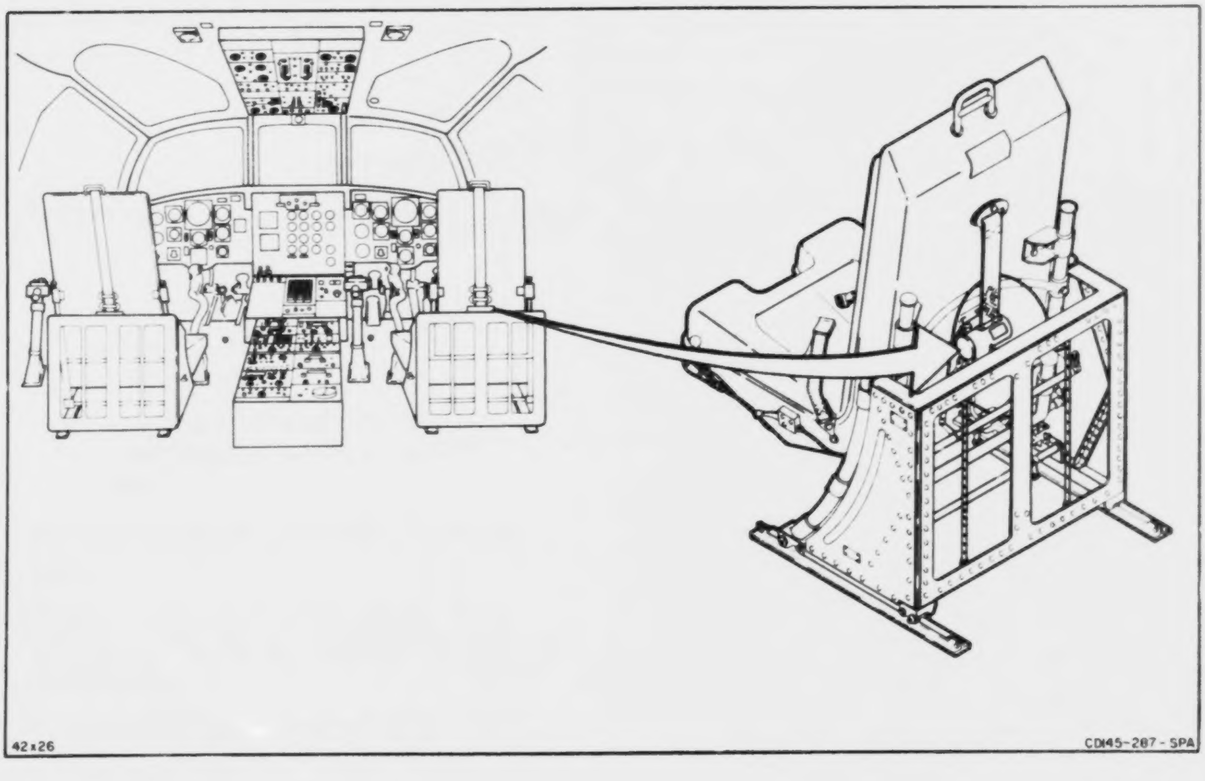
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Pilot's or Copilot's Shoulder Harness Removed (Task 2-118)
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



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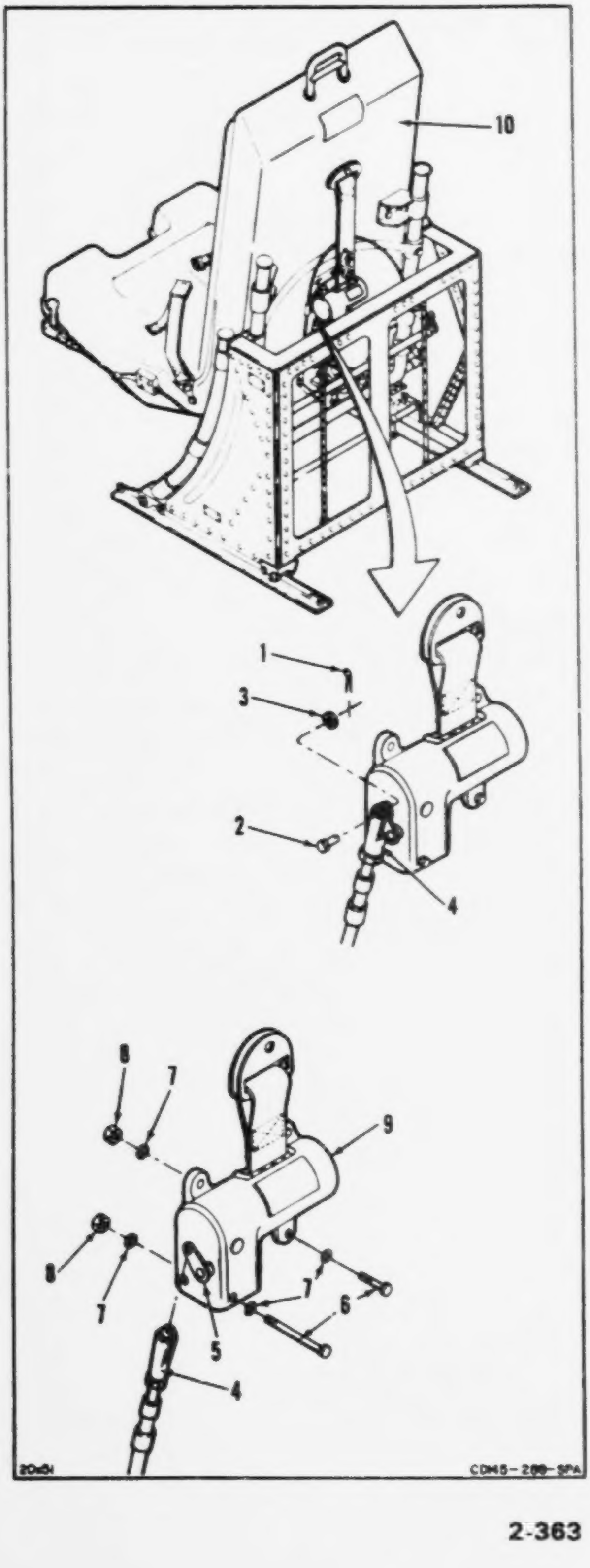
2-117 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (Continued) 2-117



NOTE

Procedures are same for removing pilot's or copilot's shoulder harness inertia reel.

1. **Remove cotter pin (1),** flat head pin (2), and washer (3) from clevis (4) on control lever (5).
2. **Remove clevis (4) from control lever (5).**
3. **Remove four bolts (6),** eight washers (7), and four nuts (8) from reel (9).
4. **Remove reel (9)** from bucket (10).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-117.1 INSPECT RESTRAINT EQUIPMENT 2-117.1

INITIAL SETUP

Applicable Configurations:
All

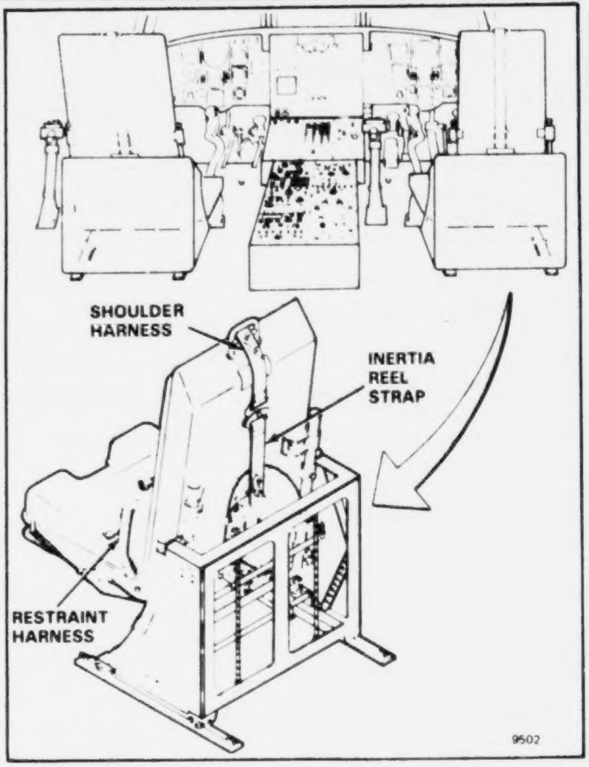
Tools:
None

Materials:
None

Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1500-204-25/1
TM 55-1520-240-23P

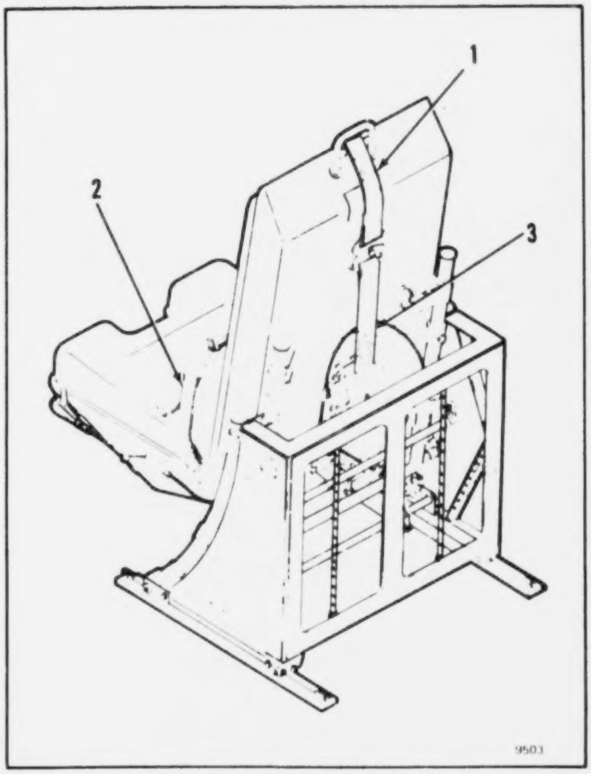
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



1. Check shoulder harness (1), restraint harness (2), and inertia reel strap webbing (3) for the following:
   - Deterioration and discoloring due to contact with foreign matter.
   - Cuts, broken stitches, and fraying.
   - Corrosion of hardware.
   - Difficulty of operation and movement.
2. Refer to TM 55-1500-204-25/1 for disposition of components displaying these problems.

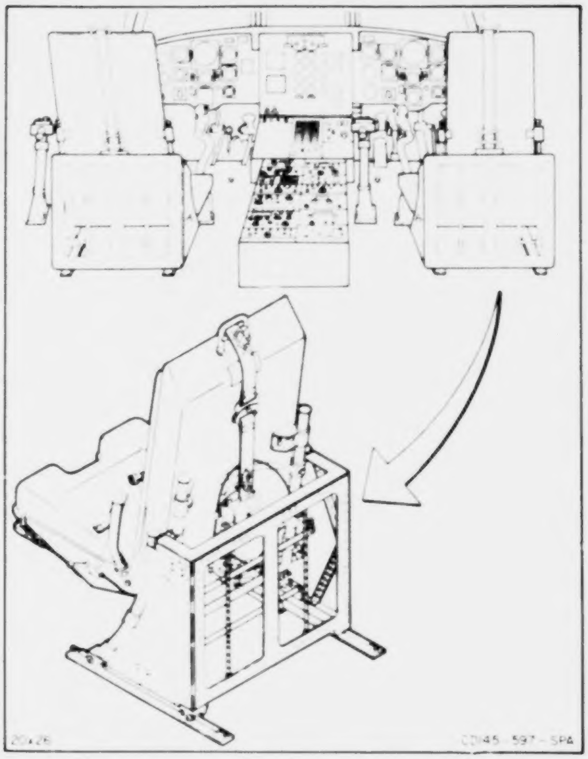
FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-118 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS 2-118



INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

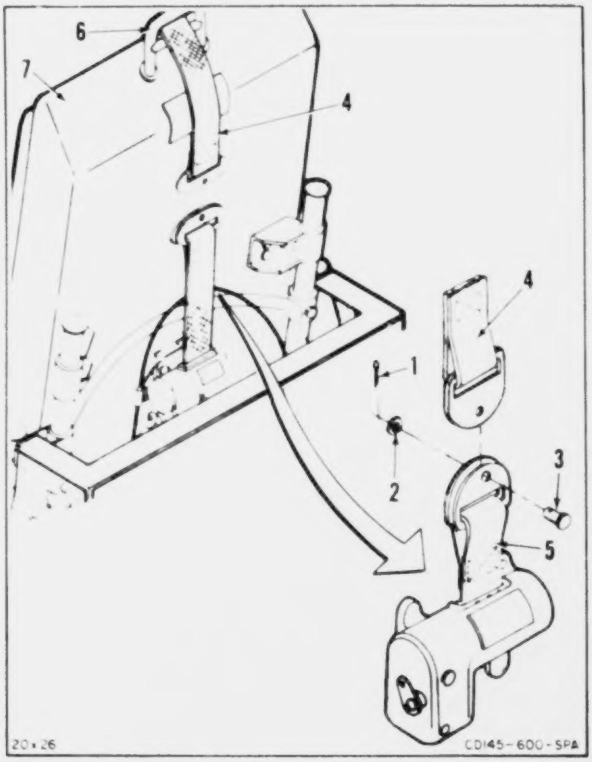
Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

NOTE

Procedure is same for removing pilot's or copilot's shoulder harness

1. **Remove cotter pin (1), washer (2), and clevis pin (3)** from shoulder harness (4) and inertia reel strap (5)
2. Pull end of strap (4) through bracket (6) at top of seat (7)



FOLLOW ON MAINTENANCE

None

END OF TASK

2-119 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS 2-119

INITIAL SETUP

Applicable Configurations:
All

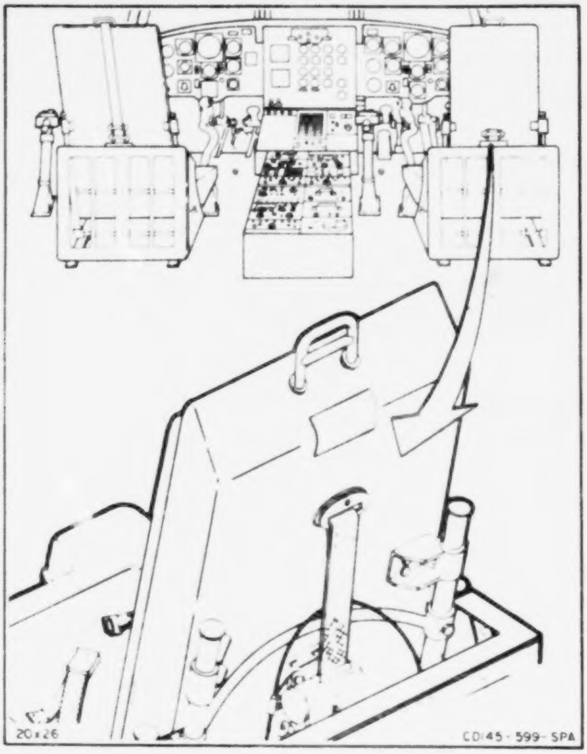
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Marking Pen

Parts:
Cotter Pin

Personnel Required:
Medium Helicopter Repairer
Inspector

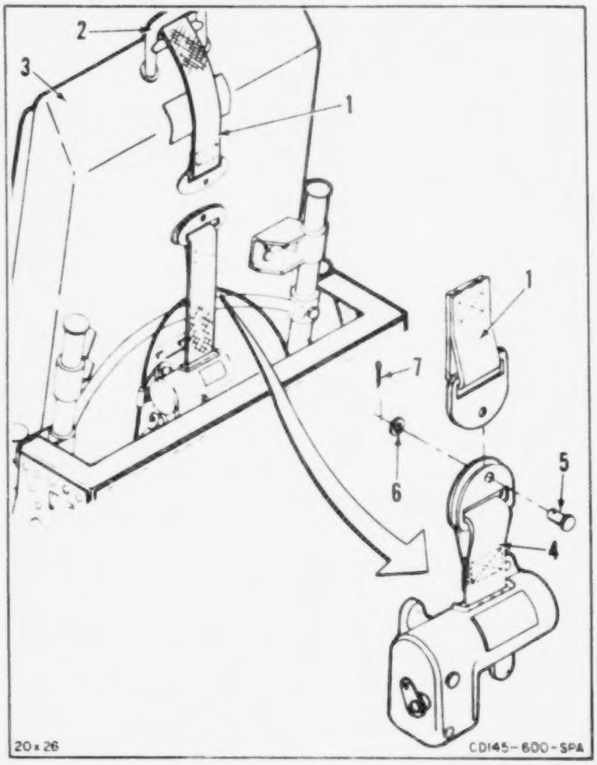
References:
TM 55-1520-240-23P



NOTE

Procedures are same for installing pilot's or copilot's shoulder harness.

1. **Put end of shoulder harness (1) through upper slot of bracket (2)** at top of seat (3). Make sure strap adjustments are face up.
2. **Align holes in shoulder harness (1) and strap (4).**
3. **Install clevis pin (5), washer (6), and new cotter pin (7).**



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-120 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP 2-120

INITIAL SETUP

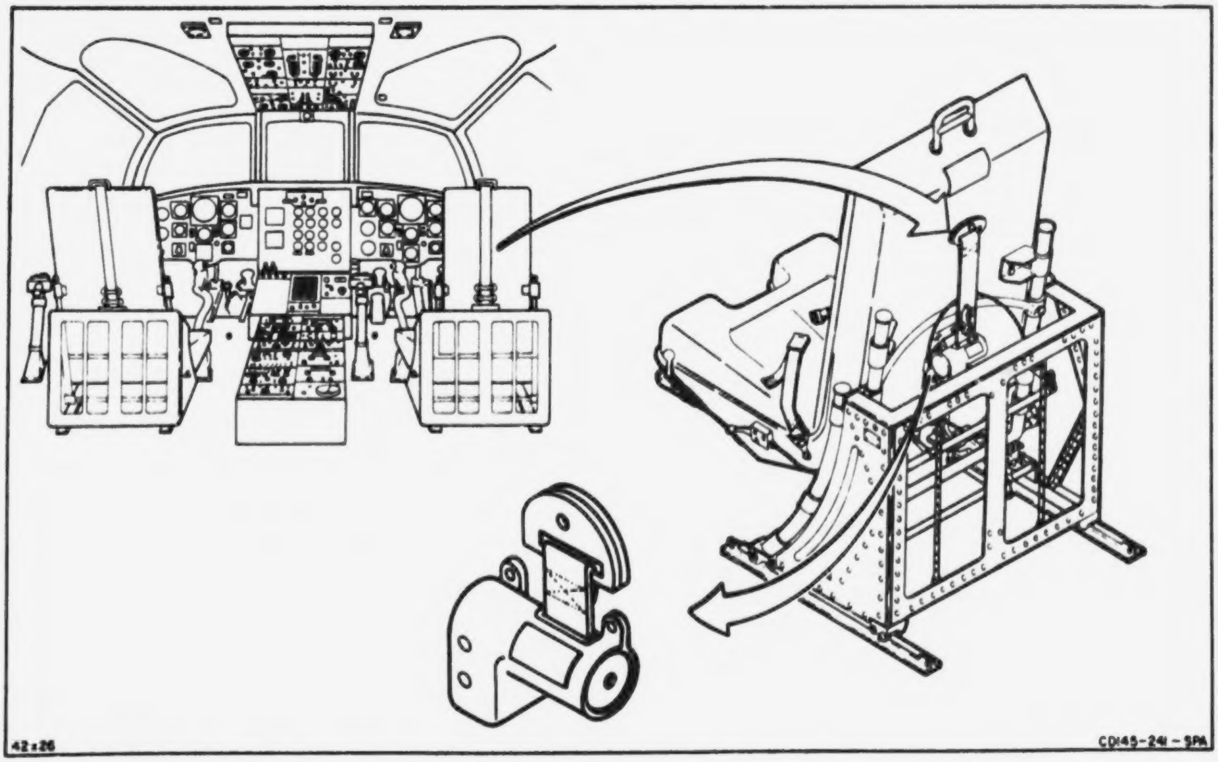
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Pilot's or Copilot's Shoulder Harness Removed (Task 2-118)
Pilot's or Copilot's Inertia Reel Removed (Task 2-117)



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2-120 REMOVE PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP (Continued) 2-120

NOTE

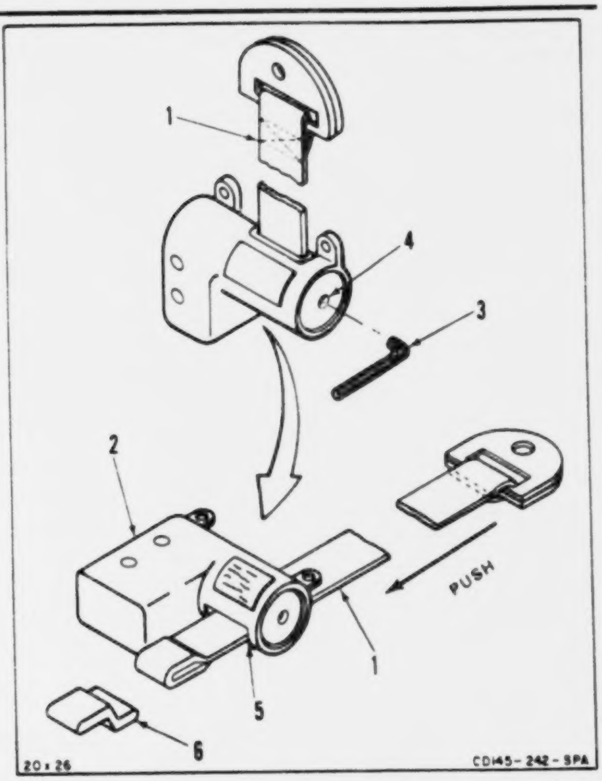
Procedures are same for removing pilot's or copilot's shoulder harness inertia reel strap.

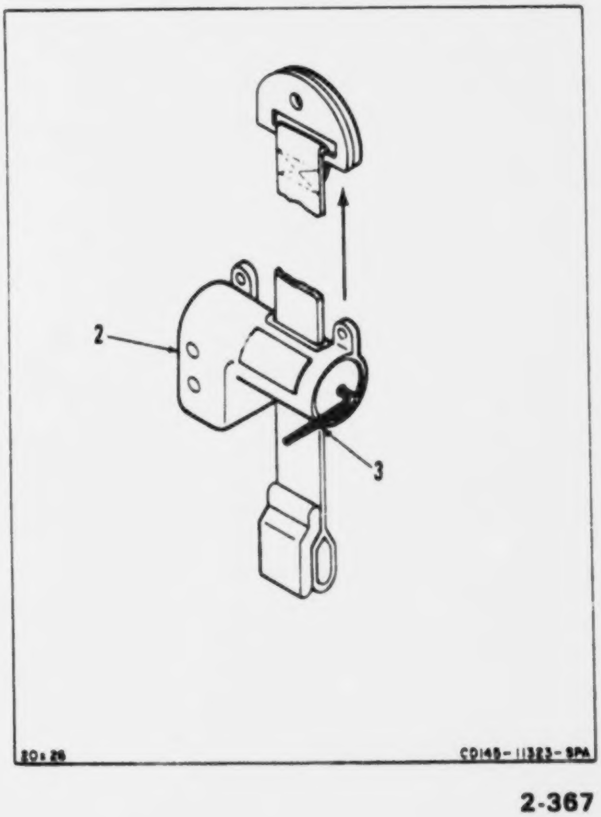
1. With aid of helper, **pull strap (1)** from inertia reel (2) as far as it will go. Hold it.
2. **Place 7/32-inch socket head screw key (3) in screw (4).**

WARNING

Power spring of inertia reel has a strong turning force on main shaft and screw key. Do not let socket head screw key come out of main shaft. Inertia reel strap will reel in fast and can injure personnel.

3. Hold key (3) to keep strap (1) from reeling in. **Push strap through reel (2) in direction of arrow.**
4. **Pull strap (1) out** through opening (5) enough to reach insert (6). Remove insert.
5. Pull strap (1) through reel (2) in direction of arrow.
6. **Let reel (2) turn slowly under spring tension.** Use key (3) to control reel. **Remove key** when all spring tension is gone.





FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-121 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP 2-121

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

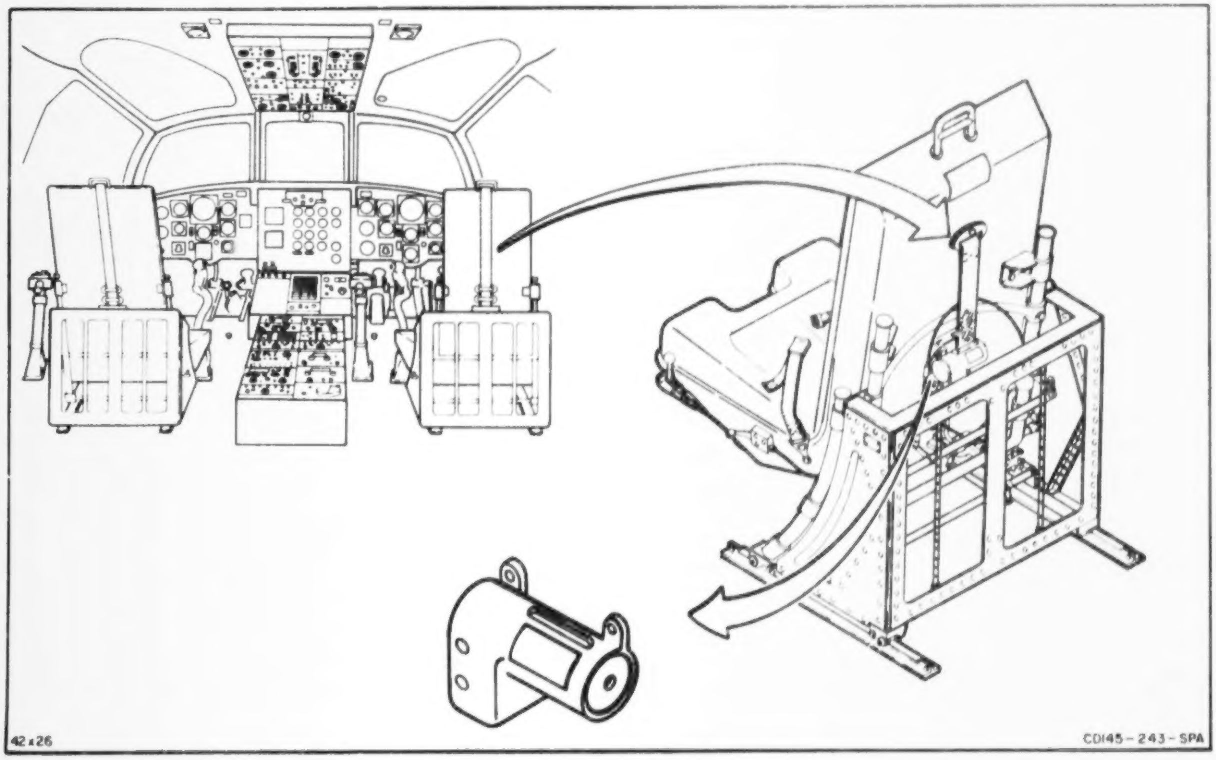
Personnel Required:

67U10 Medium Helicopter Repairer

67U30 Inspector

References:

TM 55-1520-240-23P



GO TO NEXT PAGE

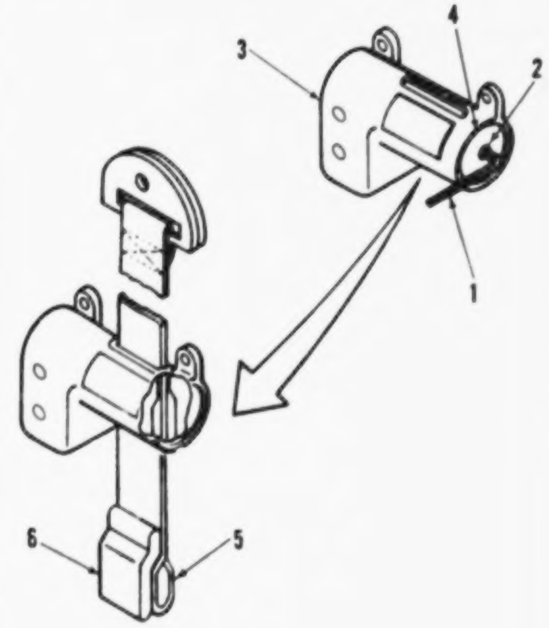
2-121 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL STRAP (Continued)

1. **Place 7/32-inch socket head screw key (1) in screw (2)** through hole in center of inertia reel (3).

WARNING

Do not let go of key or let it come out of screw in reel shaft. Inertia reel can spin under strong spring tension, causing injury to personnel.

2. **Turn key (1) counterclockwise and wind reel (3) until tight.**
3. **Unwind reel (3) about 1 turn clockwise** so narrow slot in shaft (4) is up.
4. **Feed end of strap (5) through reel in direction of arrow. Position insert (6)** on strap (5).



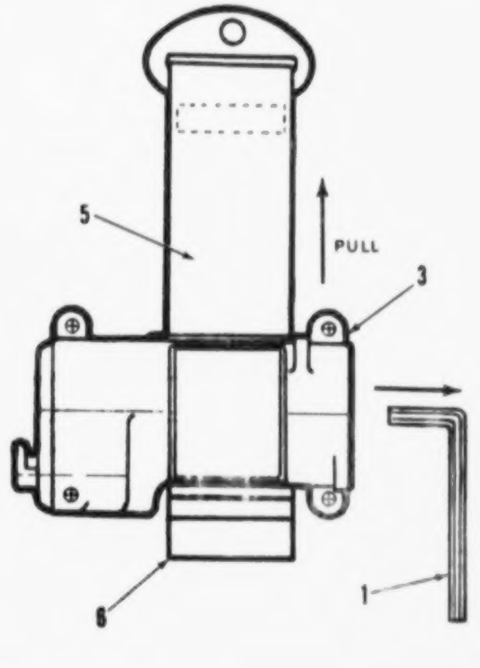
5. Pull strap (5) with insert (6) back through reel (3) in direction of arrow.
6. Make sure strap (5) and insert (6) are tight in reel (3).
7. **Pull strap (5) in direction of arrow** as far as it will go and hold. **Remove key (1).**
8. Mark installation date on strap (5).

FOLLOW-ON MAINTENANCE:

Install shoulder harness (Task 2-119).

Install inertia reel (Task 2-122).

Test inertia reel (Task 2-116).



END OF TASK

2-122 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL 2-122

INITIAL SETUP

Applicable Configurations:
All

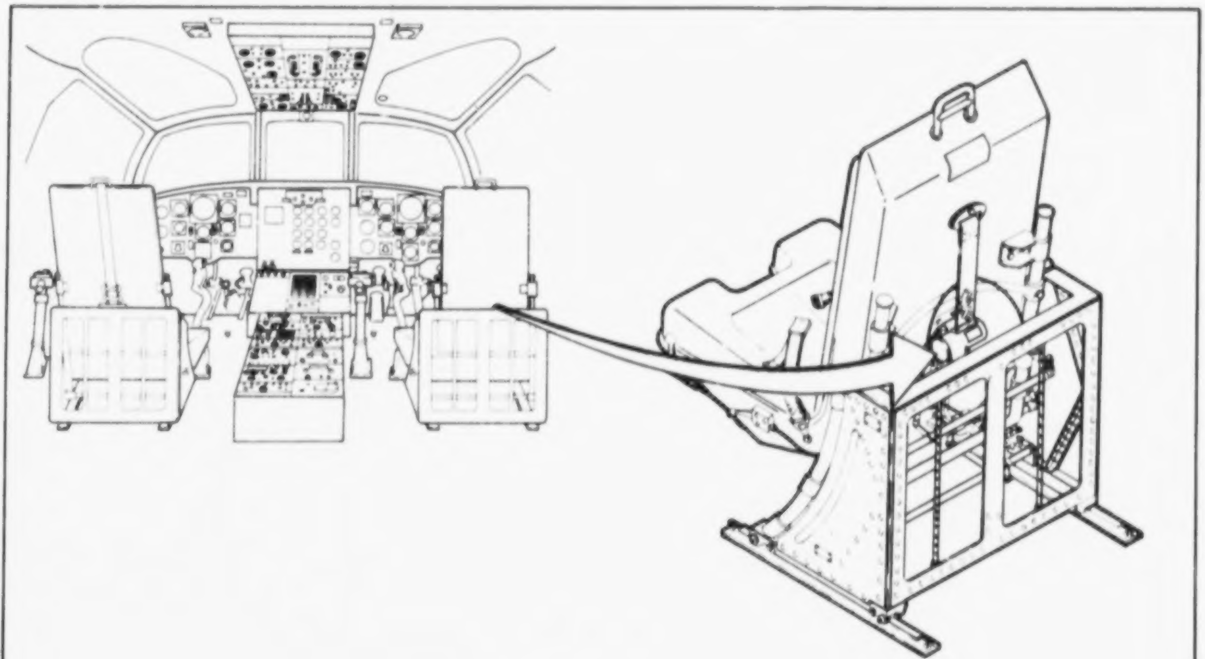
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



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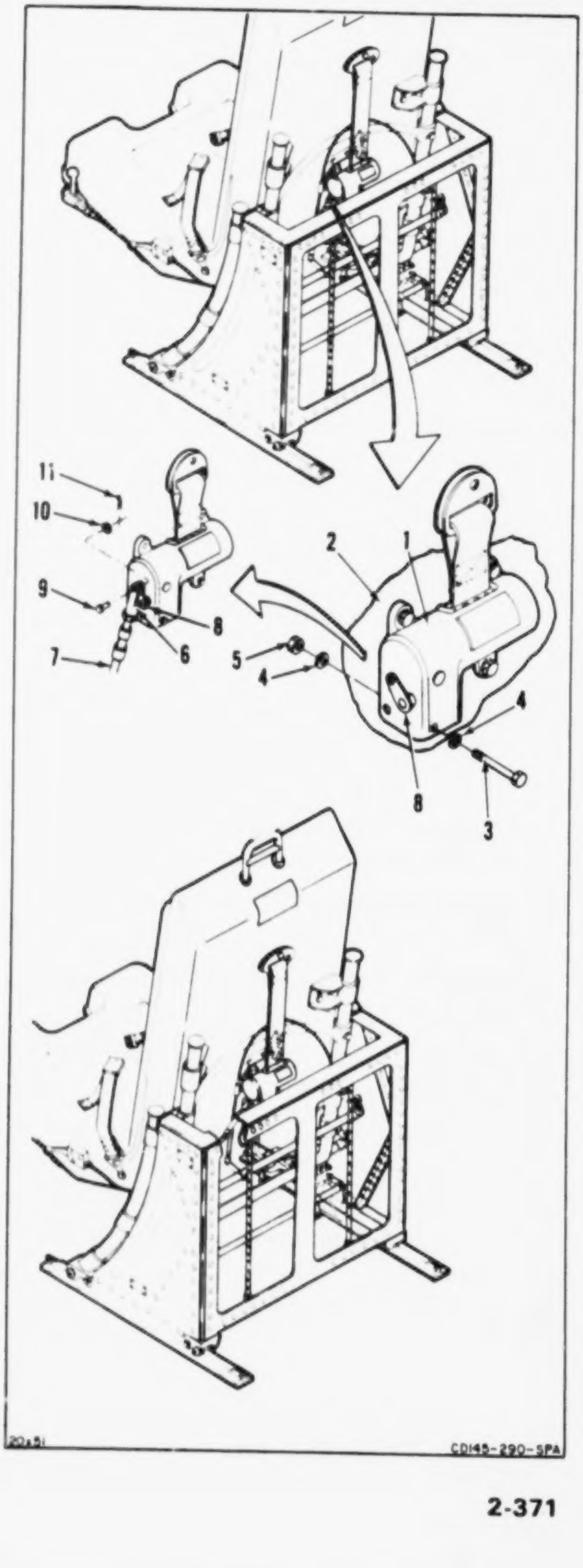
2-122 INSTALL PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL (Continued) 2-122



NOTE

Procedures are same for installing pilot's or copilot's shoulder harness inertia reel. Pilot's seat is shown here.

1. Position inertia reel (1) on seat bucket (2). Align four bolt holes in reel with seat bucket holes.
2. **Install four bolts (3),** eight washers (4), and four nuts (5).
3. Place clevis (6) of cable (7) on control lever (8).
4. **Connect clevis (6) to control lever (8) with flathead pin (9),** washer (10), and new cotter pin (11).

INSPECT

FOLLOW-ON MAINTENANCE:

Test inertia reel (Task 2-116).

END OF TASK

2-123 REMOVE SHOULDER HARNESS INERTIA REEL CONTROL 2-123

INITIAL SETUP

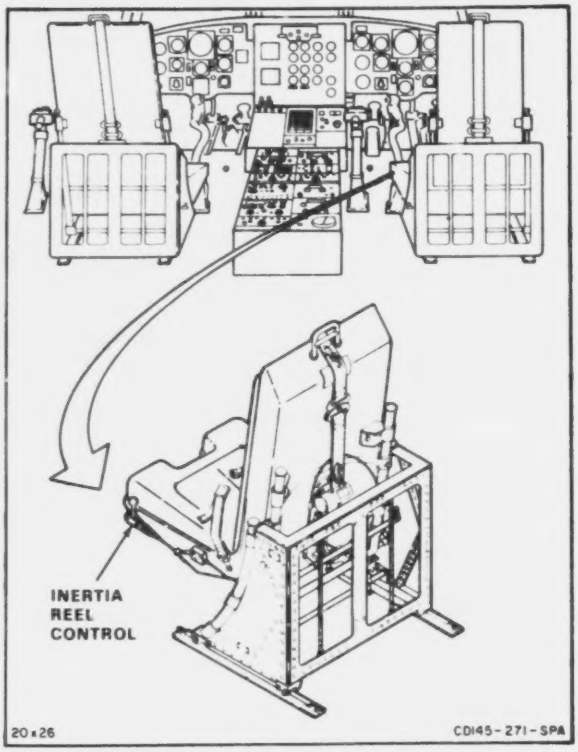
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

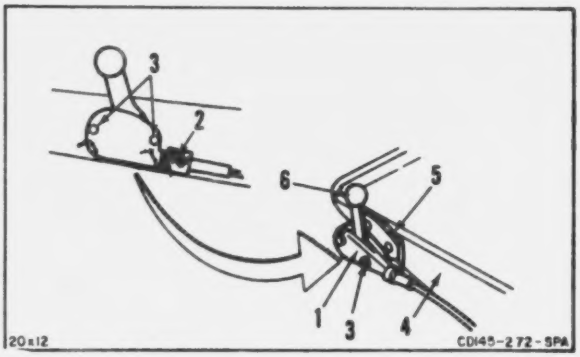
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Date Marked on Shoulder Harness
TM 55-1500-204-25/1

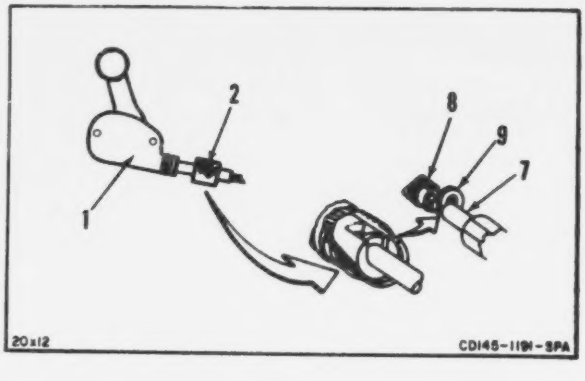

INERTIA REEL CONTROL
20x26
CDI45-271-SPA

NOTE

Procedures are same for removing pilots or copilots inertia reel control. Pilot's control is shown here.

1. **Remove lockwire** from control (1) and nut (2).
2. **Remove bolts (3)** from control (1), seat frame (4), and shim (5).
3. **Remove control (1).** Set control handle (6) in forward position (manual).
4. **Loosen nut (2)** where cable (7) connects to control (1). **Slide nut back** along cable.
5. **Pull end of cable (7)** from inner shaft socket (8). **Remove lockwasher (9)** from end of cable.


3
2
6
5
1
3
4
20x12
CDI45-272-SPA


2
8
9
7
1
20x12
CDI45-1191-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-124 INSTALL SHOULDER HARNESS INERTIA REEL CONTROL 2-124

INITIAL SETUP

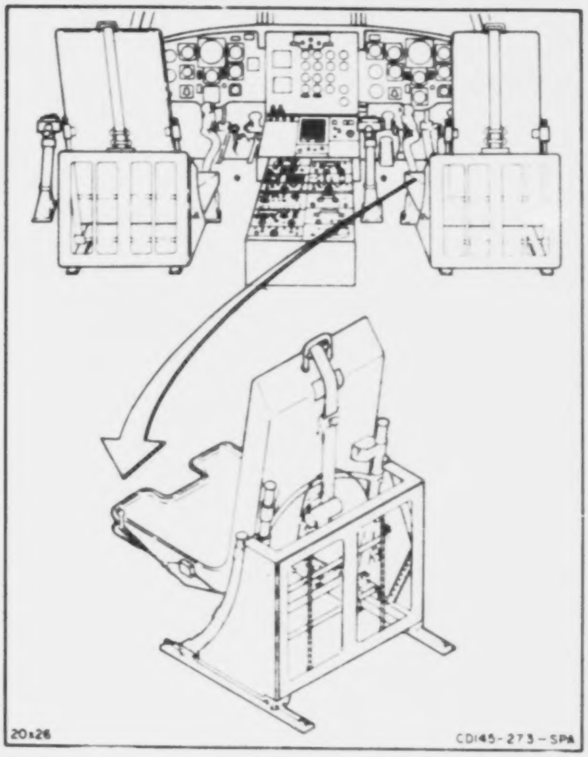
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lockwire (E227)
Marking Pen

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

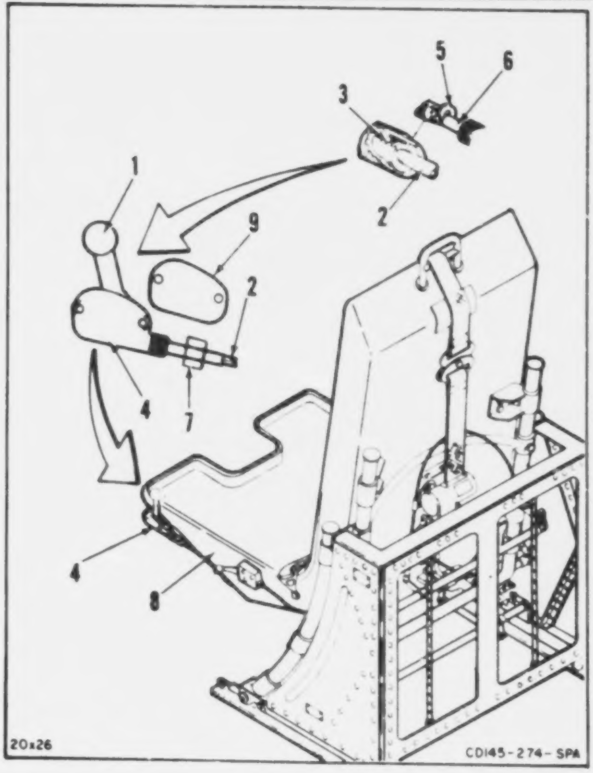
References:
TM 55-1520-240-23P



NOTE

Procedures are same for installing pilot's or copilot's shoulder harness inertia reel control. Pilot's control is shown here.

1. Make sure control handle (1) is forward (manual).
2. **Install end of cable (2)** into inner shaft socket (3) of control (4).
3. **Install lockwasher (5)** in groove (6) at end of cable (2).
4. Move nut (7) along cable (2) to control (4). Install nut hand tight.
5. **Position control (4)** on seat frame (8). Install shim (9) behind control.

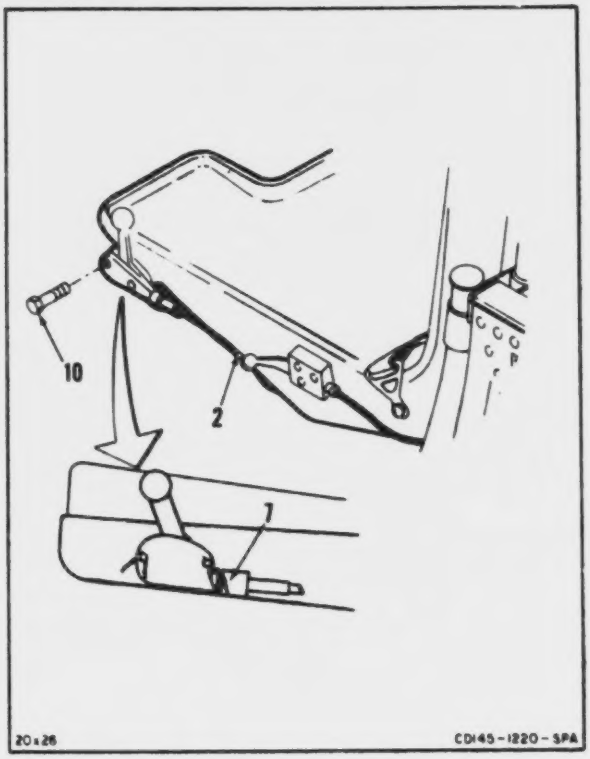


GO TO NEXT PAGE

2-124 INSTALL SHOULDER HARNESS INERTIA REEL CONTROL (Continued) 2-124

6. **Install two bolts (10).**
7. **Lockwire (E227)** bolts (10) and nut (7).

INSPECT



FOLLOW-ON MAINTENANCE:

Connect shoulder harness strap (Task 2-119).

Install seat cushion (Task 2-129).

END OF TASK

2-125 ADJUST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL LEVER THROW

INITIAL SETUP

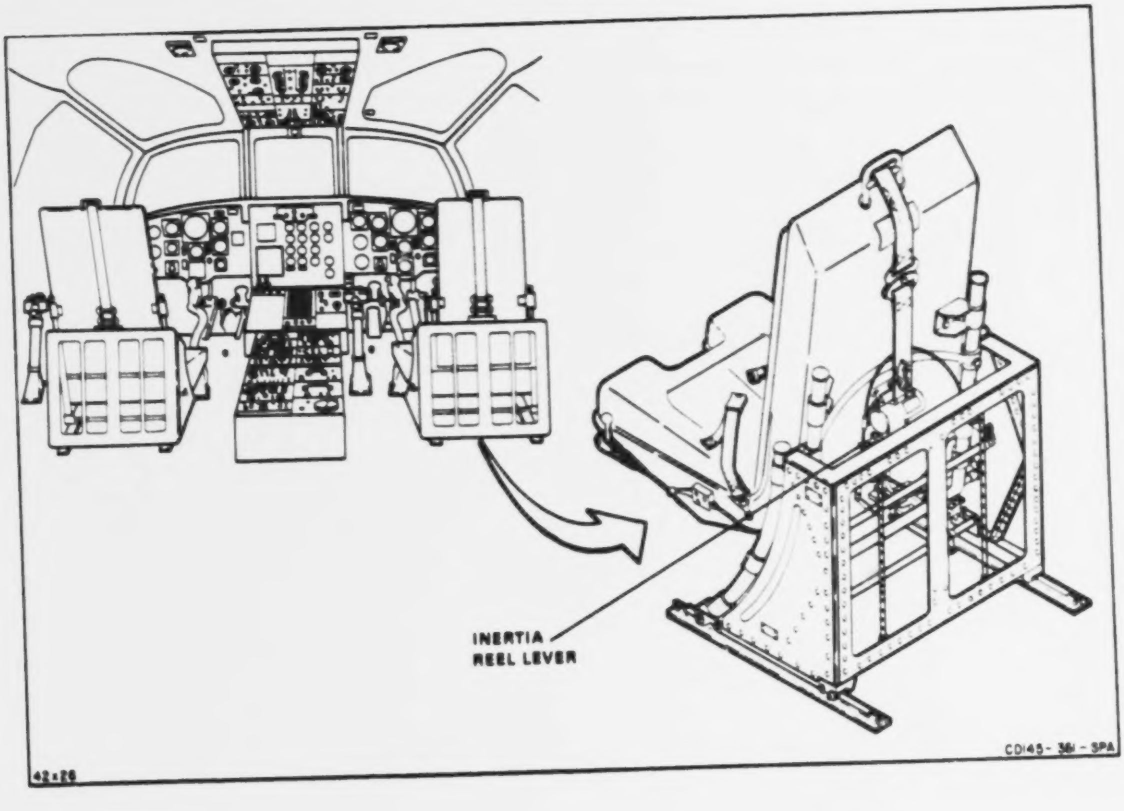
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lubricant (E237)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



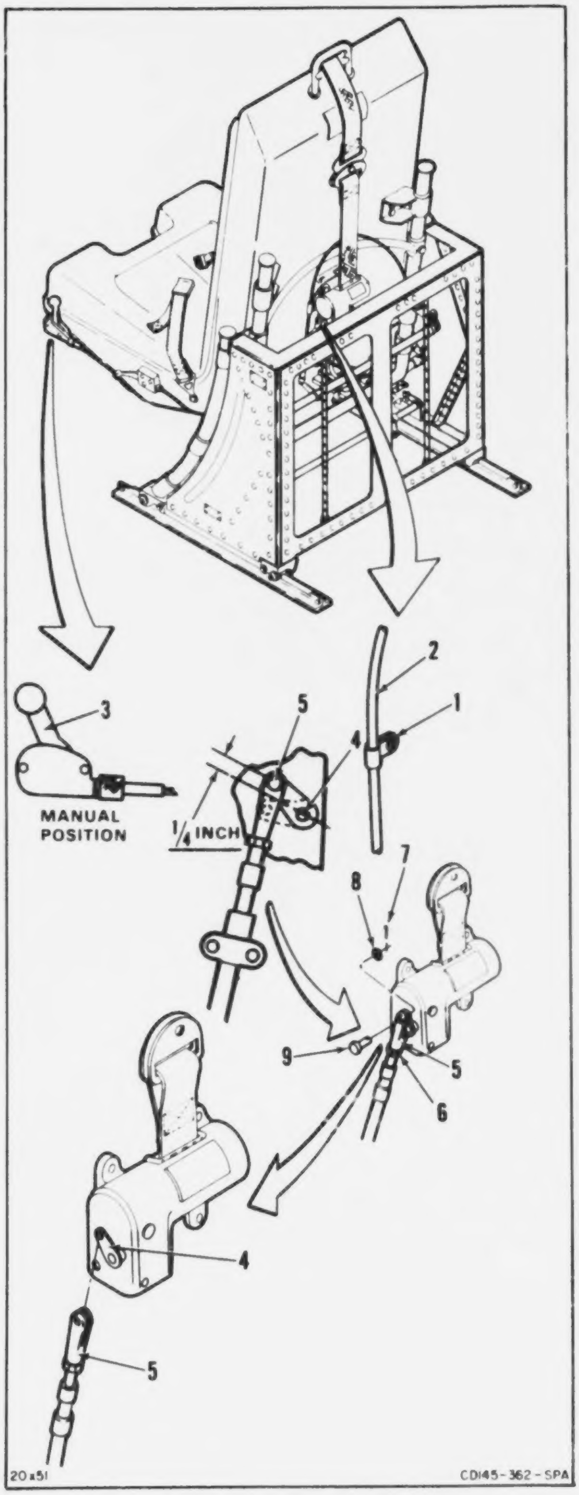
GO TO NEXT PAGE

2-125 ADJUST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL LEVER THROW (Continued) 2-125

NOTE

Procedure is same for adjusting pilot's or co-pilot's shoulder harness inertia reel lever throw. Pilot's lever throw is shown here.

1. Make sure three clamps (1) are tight on control cable (2).
2. Move control handle (3) forward and aft. If cable (2) is hard to move, lubricate with lubricant (E237). Make sure control handle (3) is in forward (manual) position.
3. Measure distance from center of pivot point of throw lever (4) to center of hole in clevis (5). Distance should be 1/4-inch. If it is, go to step 10. If it is not, do steps 4 thru 10.
4. **Loosen and back off locknut (6)** from clevis (5). Remove cotter pin (7), washer (8), and flathead pin (9).
5. **Move lever (4)** away from clevis (5).



GO TO NEXT PAGE

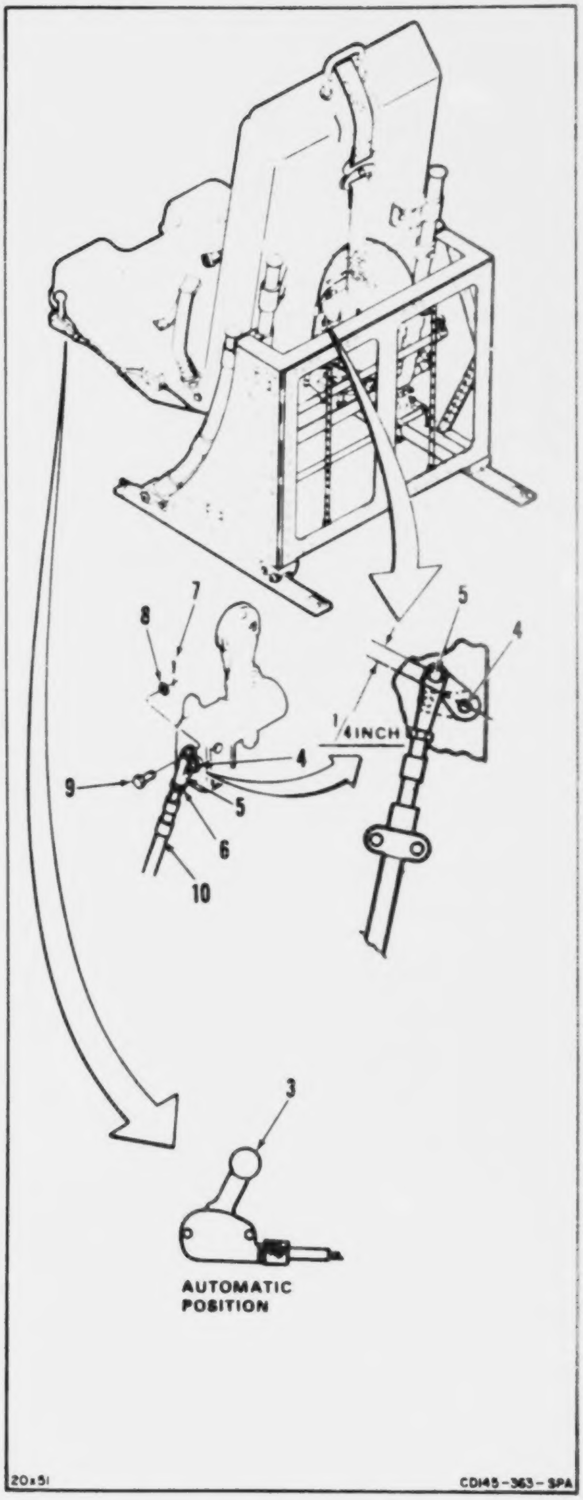
2-125 ADJUST PILOT'S OR COPILOT'S SHOULDER HARNESS INERTIA REEL LEVER THROW (Continued) 2-125

6. **Turn clevis (5)** until center of hole is 1/4-inch from center of pivot point of throw lever (4).
7. **Install flathead pin (9) through lever (4) and clevis (5).**
8. Install washer (8), and new cotter pin (7) on pin (9).
9. **Tighten locknut (6)** against clevis (5).
10. Move control handle (3) aft (automatic).
11. Measure distance from center of pivot point of throw lever (4) to center of hole in clevis (5). Distance should be 1/4-inch. If it is not, do steps 4 thru 9 again.

INSPECT

FOLLOW-ON MAINTENANCE:

Test inertia reel (Task 2-116).



END OF TASK

2-126 REMOVE PILOT'S OR COPILOT'S SAFETY BELT 2-126

INITIAL SETUP

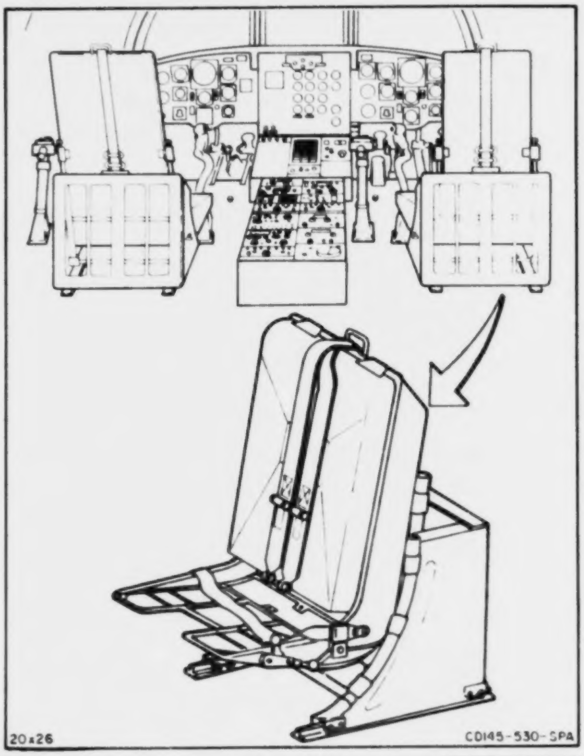
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Bottom Seat Cushion Removed (Task 2-128)
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



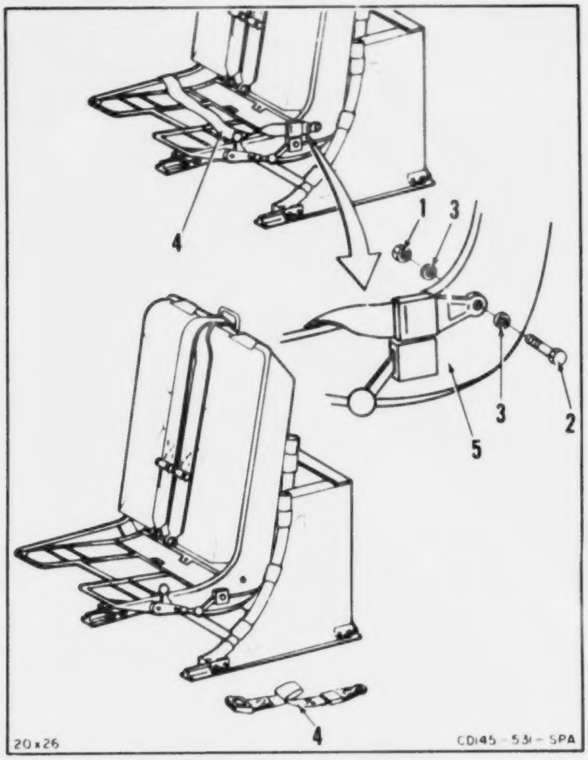
NOTE

Procedures are same for removing pilot's and copilot's safety belt.

1. **Remove nut (1), bolt (2), and two washers (3)** from safety belt (4) and bucket (5).
2. Repeat step 1. for other side (4).
3. **Remove safety belt (4).**

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-127 INSTALL PILOT'S OR COPILOT'S SAFETY BELT 2-127

INITIAL SETUP

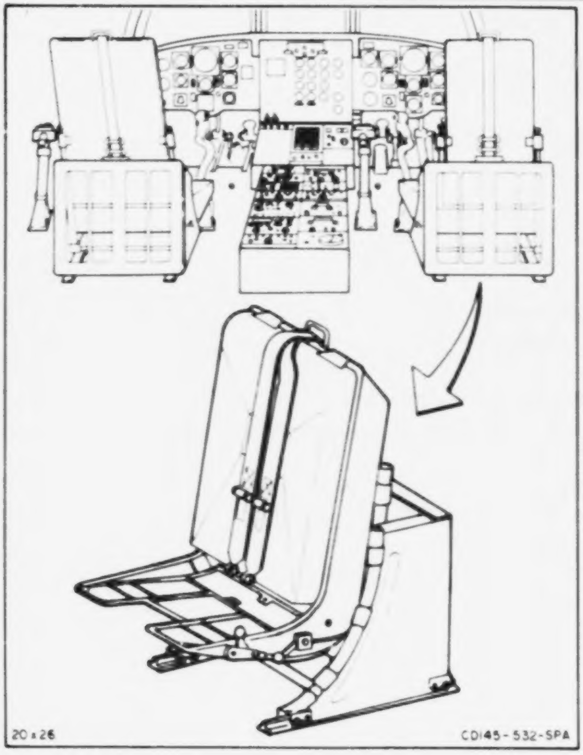
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Marking Pencil

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



WARNING

Safety belts must be installed with release handle up and pointing left. If it is not, this could prevent quick exit of personnel during emergency.

NOTE

Procedures are same for installing pilot's and copilot's safety belt.

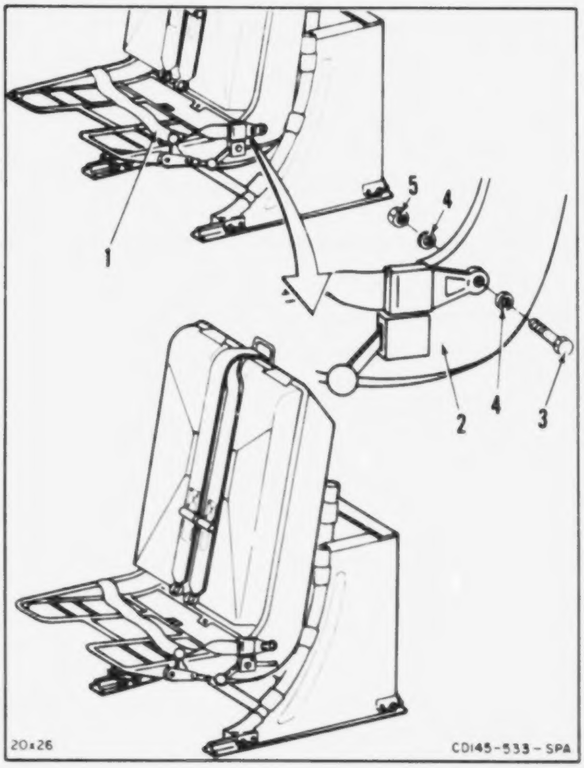
1. **Position seat belt (1)** on seat bucket (2).
2. Align holes in belt (1) and bucket (2).
3. **Install bolt (3),** two washers (4), and nut (5) through belt (1) and bucket (2).
4. Do steps 1. thru 3. for other side of belt (1).
5. Mark installation date on belt.

INSPECT

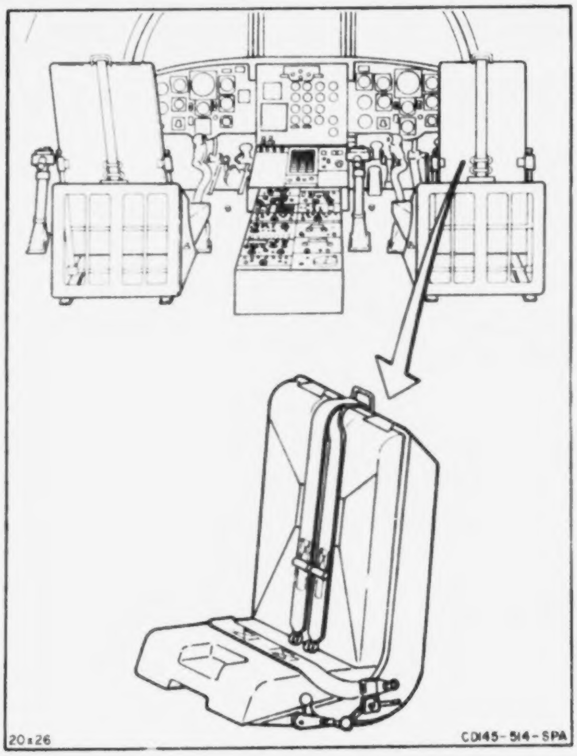
FOLLOW-ON MAINTENANCE:

Install seat cushion (Task 2-129).

END OF TASK



2-128 REMOVE PILOT'S OR COPILOT'S SEAT CUSHIONS 2-128



INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

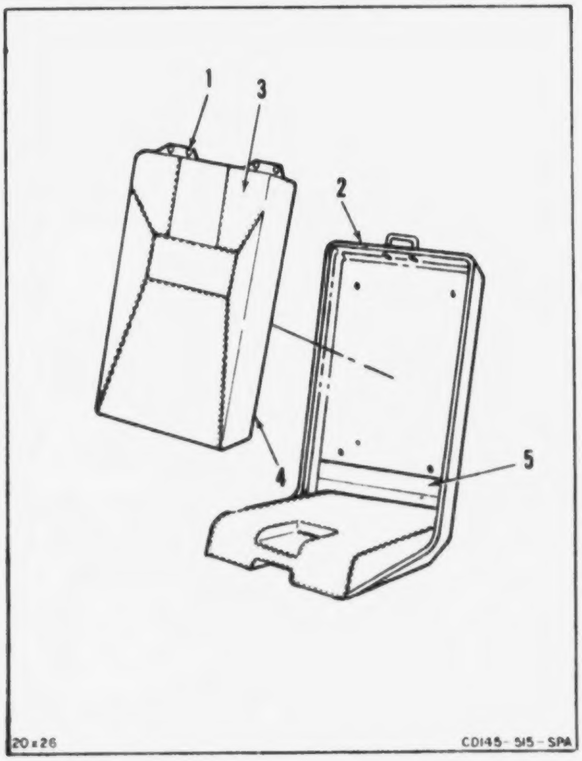
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

REMOVE BACK SEAT CUSHION

NOTE

Procedures are same for removing pilot's or copilot's seat cushions. Pilot's seat is shown here.

1. **Unsnap four fasteners (1)** from seat bucket (2).
2. **Separate hook tape (4)** from pile tape (5). **Remove cushion (3).**

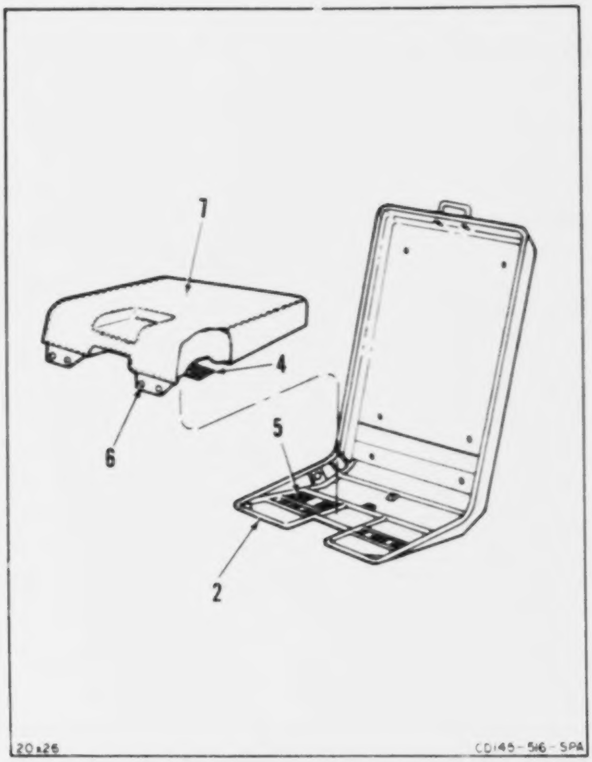


GO TO NEXT PAGE

2-128 REMOVE PILOT'S OR COPILOT'S SEAT CUSHIONS (Continued) 2-128

REMOVE BOTTOM SEAT CUSHION

3. **Unsnap four fasteners (6)** from seat bucket (2).
4. **Separate hook tape (4)** from pile tape (5). **Lift off cushion (7).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-129 INSTALL PILOT'S OR COPILOT'S SEAT CUSHIONS 2-129

INITIAL SETUP

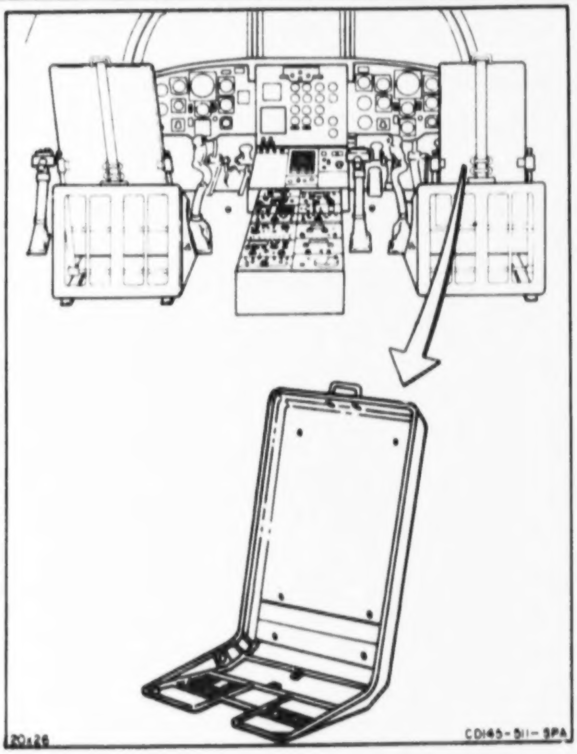
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P

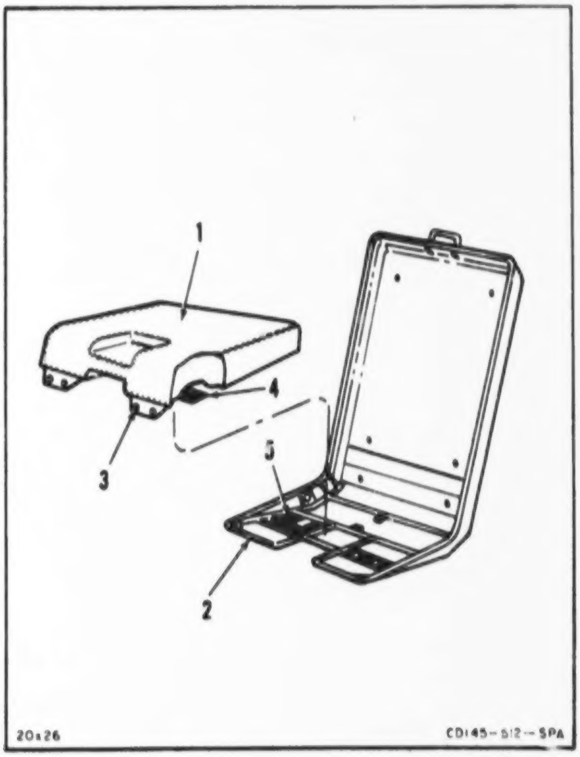


INSTALL BOTTOM SEAT CUSHION

NOTE

Procedures are same for installing both pilot's or copilot's seat cushions. Pilot's seat is shown here.

1. **Position bottom cushion (1)** in seat bucket (2).
2. **Snap four fasteners (3)** to bucket (2). Press on cushion so hook tape (4) sticks to pile tape (5).



GO TO NEXT PAGE

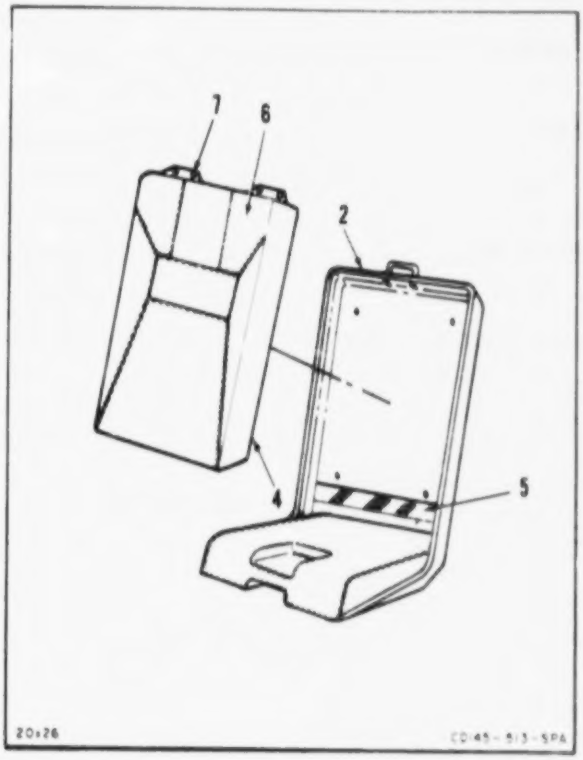
2-129 INSTALL PILOT'S OR COPILOT'S SEAT CUSHIONS (Continued) 2-129

INSTALL BACK SEAT CUSHION

3. **Position back seat cushion (6)** in seat bucket (2).
4. **Snap four fasteners (7)** to bucket (2). Press on cushion so hook tape (4) sticks to pile tape (5).

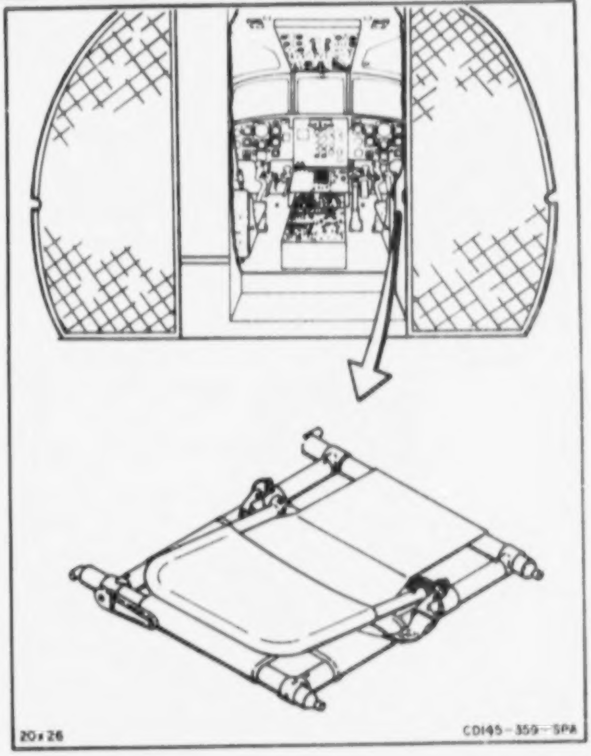
FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-130 REMOVE TROOP COMMANDER'S SEAT 2-130



INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

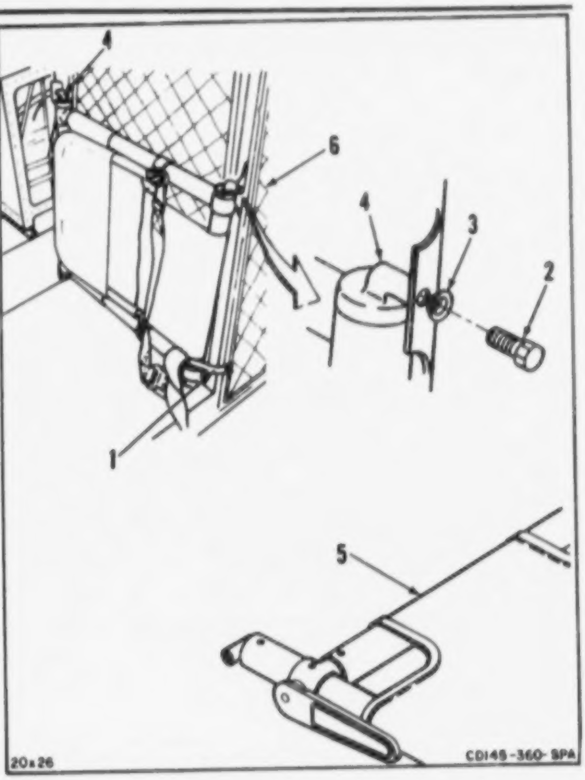
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Commander's Seat in Stowed Position (Task 2-134)
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off

---

1. **Release seat stowage strap (1).**
2. **Remove two bolts (2)** and bushings (3) from hinges (4) of seat (5). Hold blanket (6) clear if required.
3. **Remove seat (5).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-131 DISASSEMBLE TROOP COMMANDER'S SEAT ACA4300 2-131

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Retaining Ring Pliers

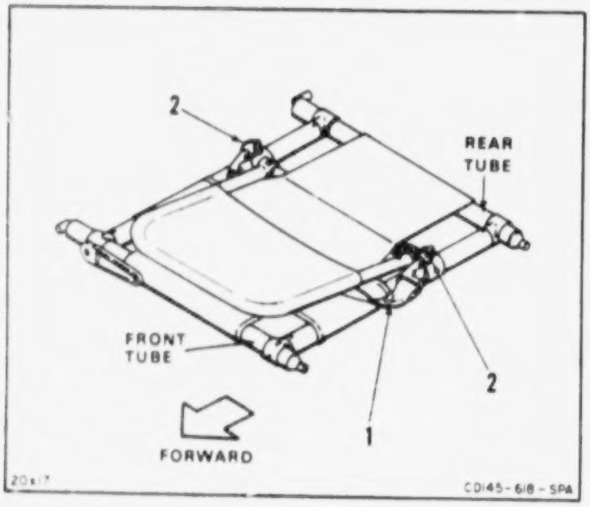
Materials:
Liquid Soap (E352)

Personnel Required:
Medium Helicopter Repairer

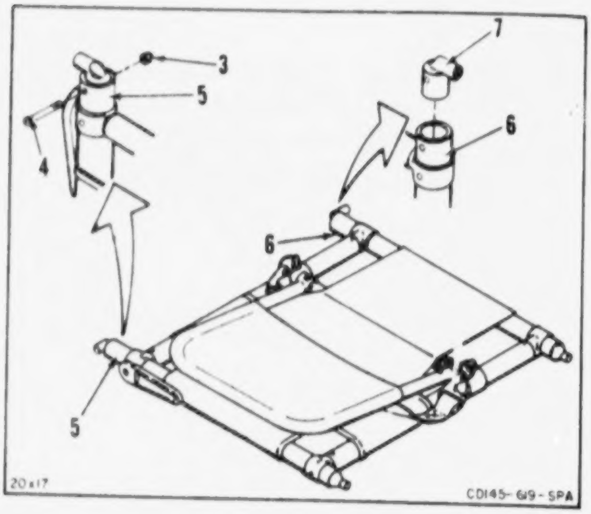
Equipment Condition:
Off Helicopter Task

---

1. **Remove seat belt (1)** from two retaining rings (2).


2
REAR TUBE
FRONT TUBE
2
1
FORWARD
20x17
CD145-6/8-SPA

2. Remove two nuts (3) and screws (4) from front and rear tubes (5 and 6). **Remove two hinges (7).**
3. Check hinges (7) for stripped thread. Replace hinges if damaged.

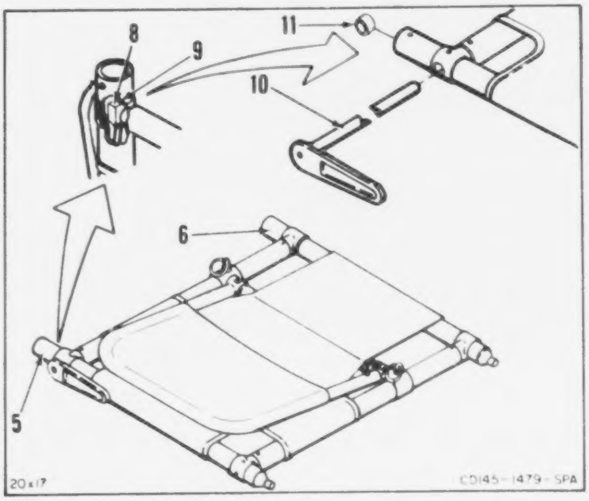

7
3
5
6
4
6
5
20x17
CD145-6/9-SPA

GO TO NEXT PAGE

2-131 DISASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-131

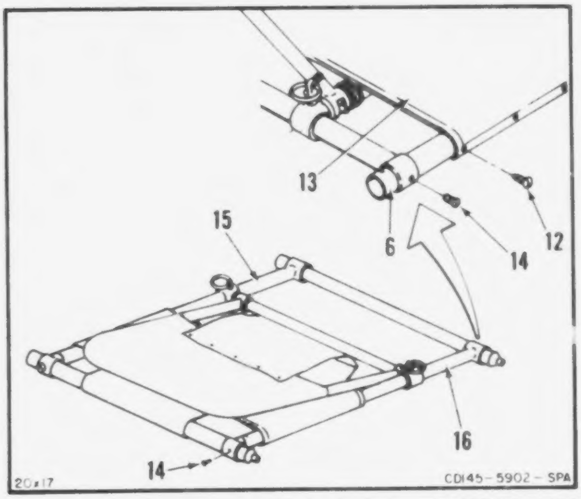
4. Loosen set screw (8) in actuator blocks (9) inside tubes (5 and 6).

5. **Pull handle (10) from tube (5).** Remove one nylon bushing (11) from each tube (5 and 6).


8
9
11
10
6
5
20x17
CDI45-1479-SPA

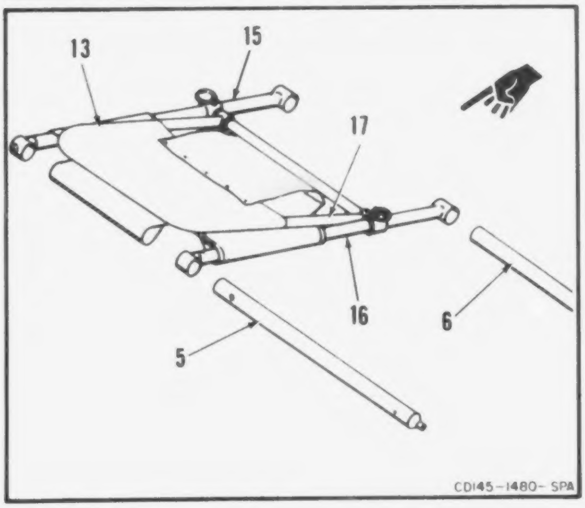
6. Remove five screws (12) from seat fabric (13) and rear tube (6).

7. Remove three screws (14) from side tubes (15 and 16).


13
15
6
14
12
16
14
20x17
CDI45-5902-SPA

8. **Slide front and rear tubes (5 and 6) away from side tubes (15 and 16).** Set tubes (5 and 6) aside for disassembly in step 14.

9. Pull up seat fabric (13) from backrest tube (17).


13
15
17
16
6
5
CDI45-1480-SPA

GO TO NEXT PAGE

2-131 DISASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-131

10. Remove two plugs (18) from lower tube (19) of backrest tube (17).

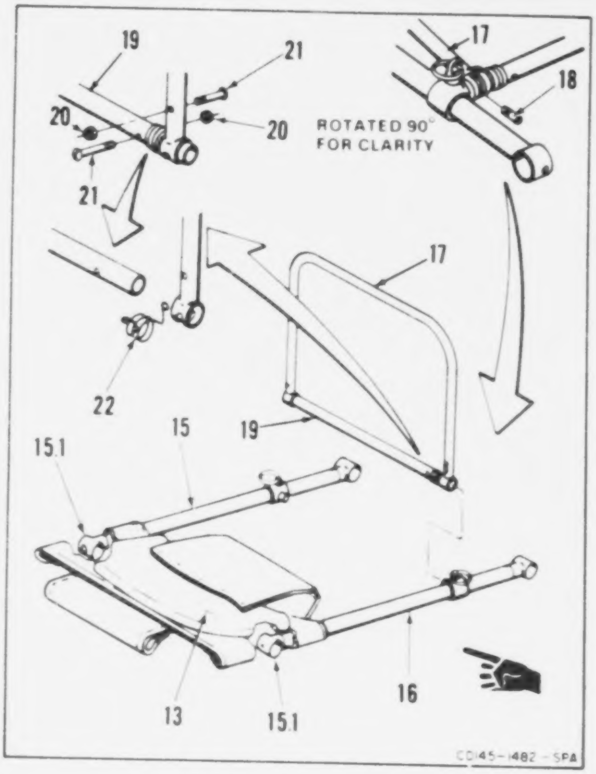
11. Remove two nuts (20) and screws (21) from tubes (17 and 19). Remove spring (22).

12. Remove backrest tube (17) from side tubes (15 and 16).

13. Slide tubes (15 and 16) apart and remove lower backrest tube (19).

13.1 Apply liquid soap (E352) to fittings (15.1) on tubes (15 and 16).

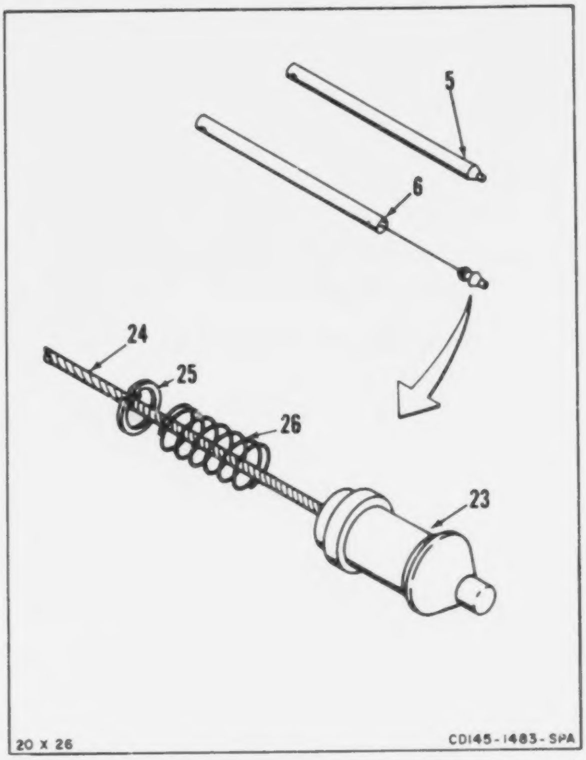
13.2 Pull seat fabric (13) from tubes (15 and 16).


19
21
17
18
20
20
ROTATED 90° FOR CLARITY
21
17
22
15
19
15.1
16
13
15.1
CD145-1482-SPA

GO TO NEXT PAGE

2-131 DISASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-131

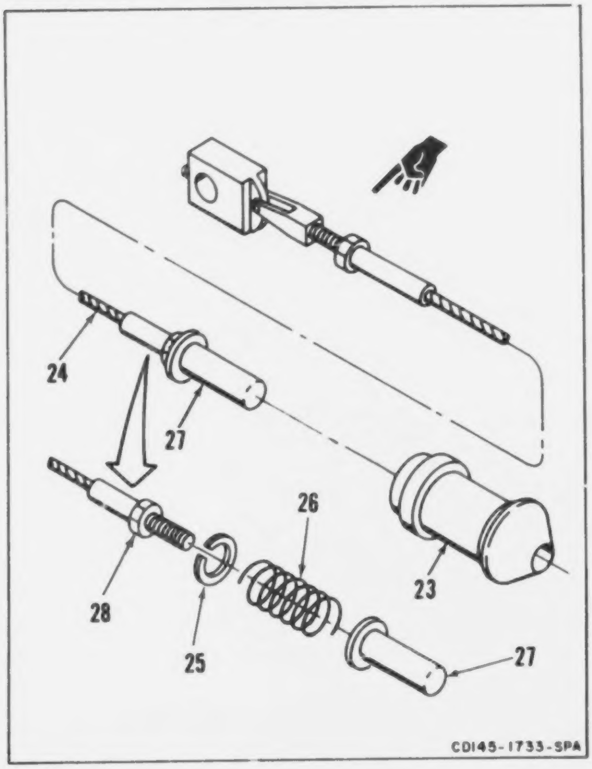
14. **Remove housing (23)** with wire rope assembly (24) from ends of tubes (5 and 6).
15. Remove retaining ring (25) and spring (26) from housing (23).


5
6
24
25
26
23
20 X 26
CD145-1483-SPA

16. **Remove plunger (27)** with wire rope assembly (24). Loosen jam nut (28). Remove plunger from wire rope assembly.
17. Remove retaining ring (25) and spring (26) from wire rope assembly (24).

FOLLOW-ON MAINTENANCE:

None


24
27
26
23
28
25
27
CD145-1733-SPA

END OF TASK

2-131.1 DISASSEMBLE TROOP COMMANDER'S SEAT A-6632 2-131.1

INITIAL SETUP

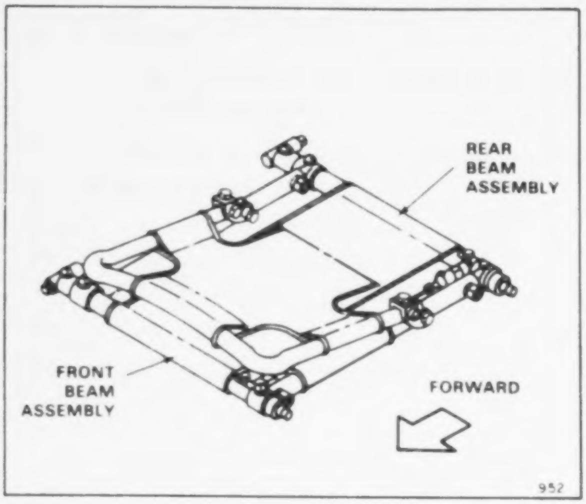
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

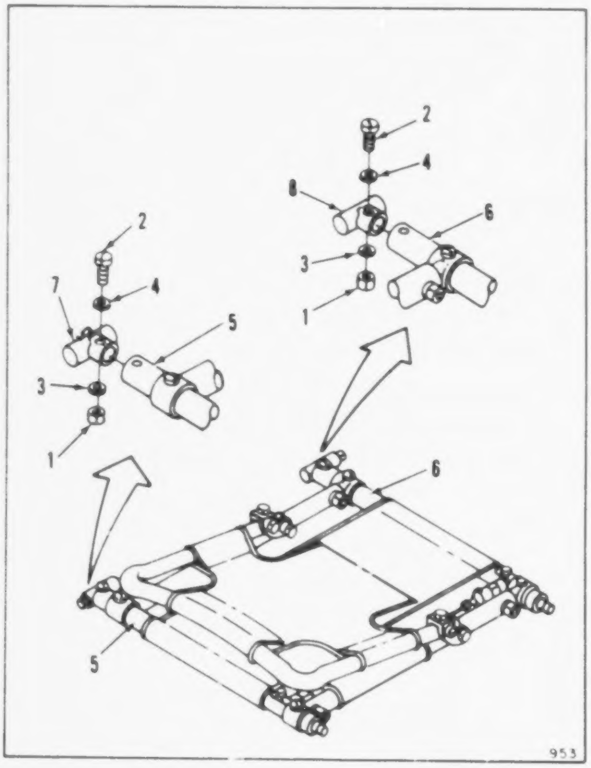
Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


REAR BEAM ASSEMBLY
FRONT BEAM ASSEMBLY
FORWARD
952

1. **Remove two nuts (1),** bolts (2), and washers (3 and 4) from front beam assembly (5) and rear beam assembly (6). **Remove two hinges (7 and 8).**
2. **Check hinges (7 and 8)** for stripped thread. Replace hinges if damaged.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953

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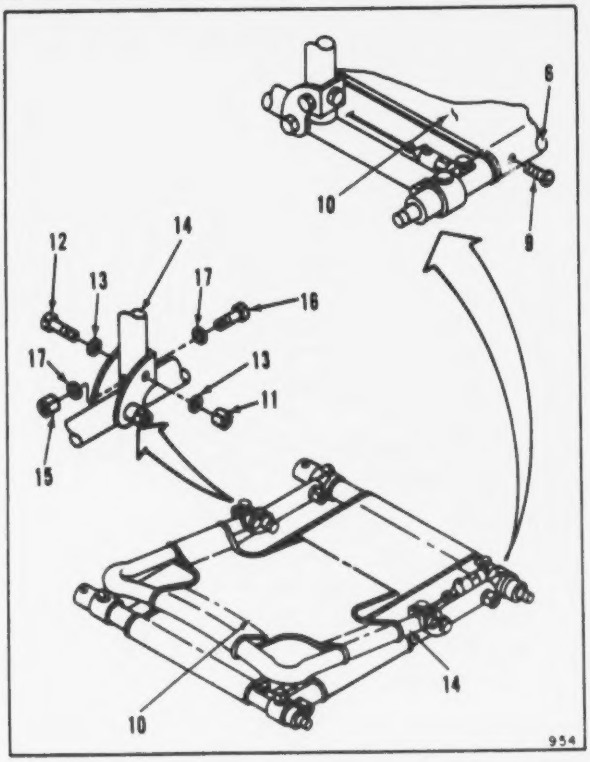
2-131.1 DISASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-131.1

3. **Remove six screws (9)** from seat fabric (10) and rear beam assembly (6).
4. **Remove two nuts (11),** bolts (12), and washers (13) from back frame asssembly (14).
5. **Remove two nuts (15),** bolts (16), and washers (17) from back frame assembly (14).
6. Slide back frame assembly (14) from seat fabric (10). **Remove back frame assembly (14).**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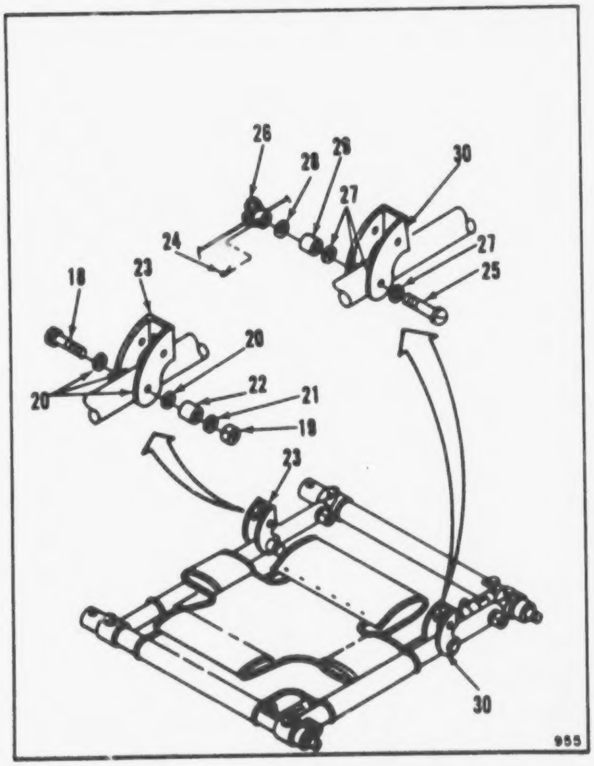
954

7. Remove bolt (18), nut (19), washers (20 and 21), and spacer (22) from hinge (23). **Remove hinge.**
8. **Remove cotter pin (24), screw (25),** thumbscrew (26), washers (27 and 28), and spacer (29) from hinge (30). **Remove hinge.**


26
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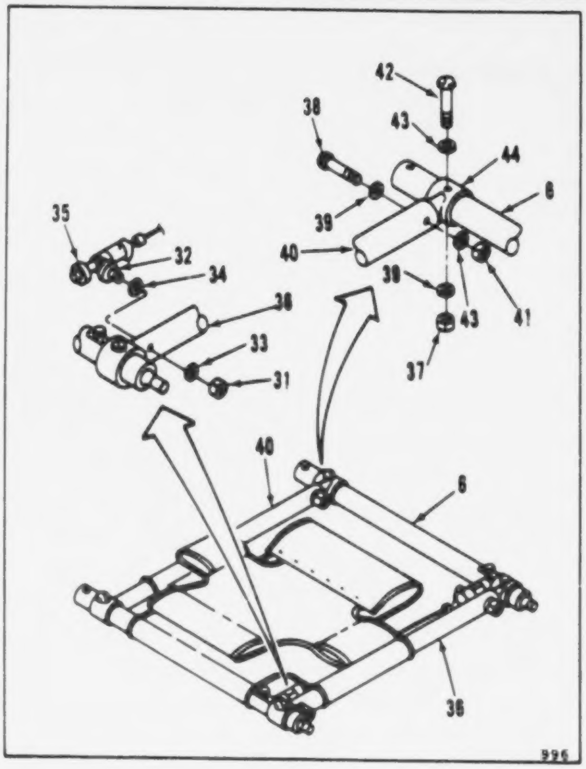
955

GO TO NEXT PAGE

2-131.1 DISASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-131.1

9. **Remove two nuts (31),** eye bolts (32), washers (33 and 34) and bolts (35) from side tube (36).
10. **Remove nut (37),** bolt (38), and washers (39) from side tube (40). **Remove** rear **beam assembly (6).**
11. **Remove nut (41),** bolt (42), and washers (43) from bracket (44). **Remove bracket (44)** from rear beam assembly (6).


42
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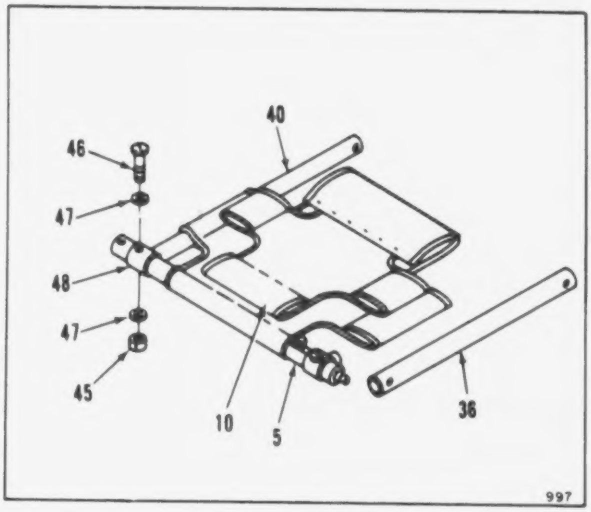
995

12. **Slide side tube (36) from seat fabric (10).**
13. **Remove nut (45),** bolt (46), and washers (47) from bracket (48). Slide side tube (40) with seat fabric (10) from front beam assembly (5).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36
997

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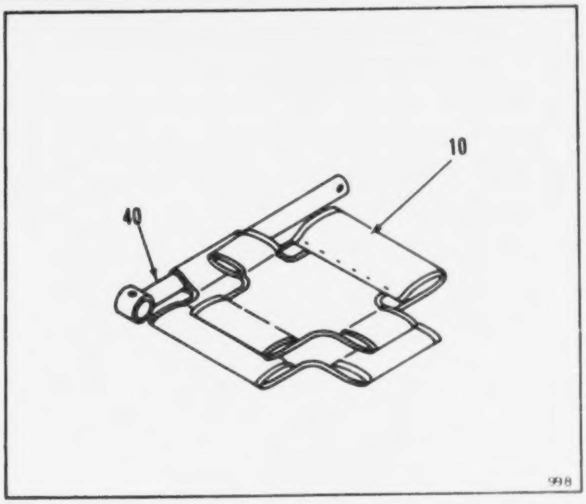
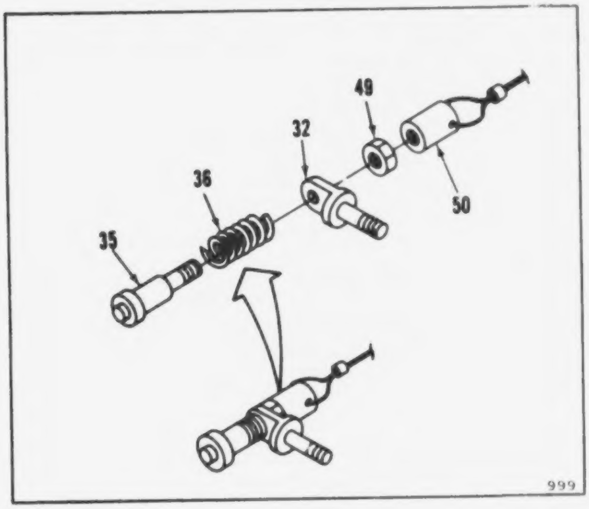
2-131.1 DISASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-131.1

14. **Slide side tube (40) from seat fabric (10).**



15. **Loosen two nuts (49). Remove adapter (50)** from bolts (35).
16. **Remove two nuts (49), bolts (35),** and springs (36) from eyebolts (32).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-132 ASSEMBLE TROOP COMMANDER'S SEAT ACA4300 2-132

INITIAL SETUP

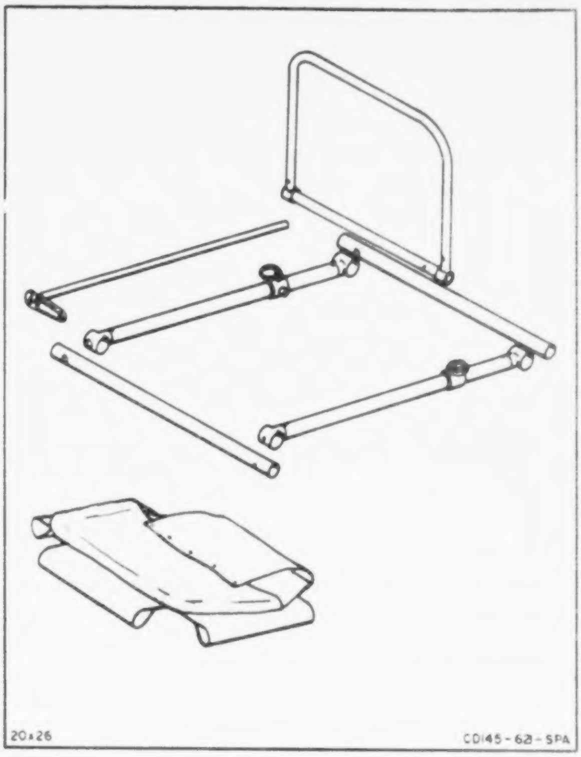
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Retaining Ring Pliers

Materials:
Gloves (E186)
Cloth (E120)
Solvent (E163)
Liquid Soap (E352)

Personnel Required:
Medium Helicopter Repairer

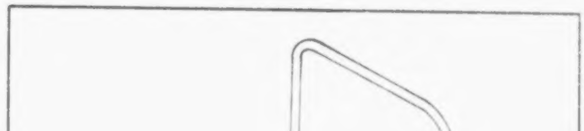
References:
TM 55-1520-240-23P



WARNING

Solvent (E163) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

1. **Clean** all **seat** assembly metal **tubes and handle** with solvent (E163).
2. **Clean nylon seat fabric and safety belt** with clean cloth (E120) damp with water.



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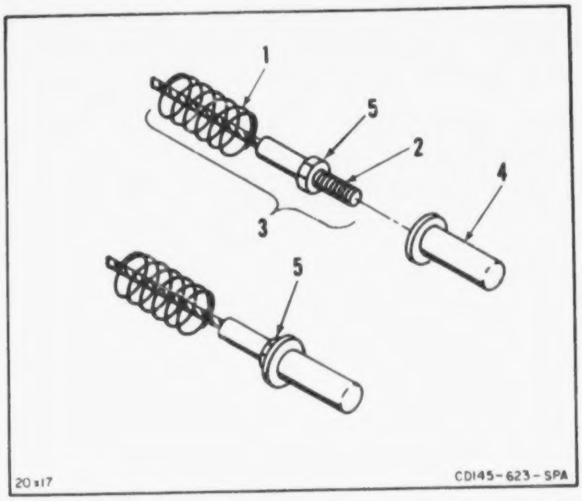
2-132 ASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-132

3. Install spring (1) over stud (2) of wire rope assembly (3).
4. Install stud (2) in plunger (4) as far as it will go. Tighten jam nut (5) on plunger.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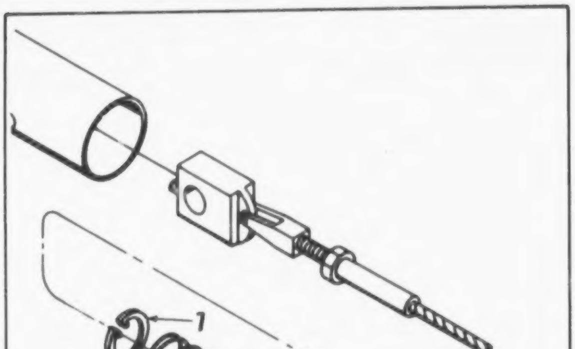
20x17
CD145-623-SPA

5. Install wire rope assembly (3), plunger (4), and spring (1) in housing (6).
6. **Install retaining ring (7)** inside housing (6).
7. **Install two housings (6)** in front and rear tubes (8 and 9).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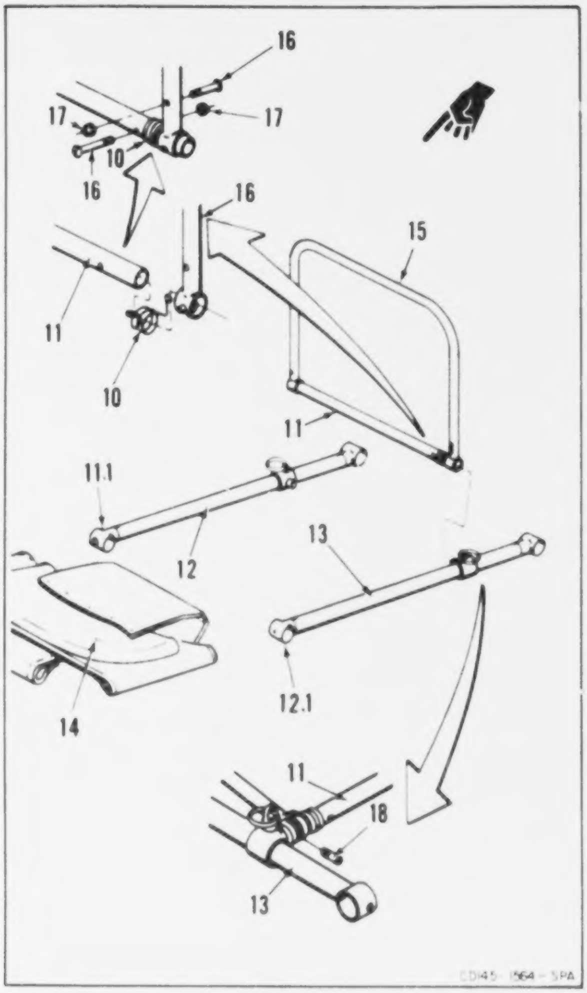
2-132 ASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-132

8. **Position spring (10)** on lower backrest tube (11).
9. Apply liquid soap (E352) to fittings (11.1) of tubes (12 and 13).
10. **Slide seat fabric (14)** on side tubes (12 and (13).
11. **Position lower backrest tube (11)** between side tubes (12 and 13).
12. Slide seat fabric (14) on backrest tube (15) and **position backrest tube (15)** on lower backrest tube (11).
13. **Install three screws (16)** and nuts (17) through ends of spring (10) and tubes (11 and 15).
14. **Install two plugs (18)** on lower backrest tube (11).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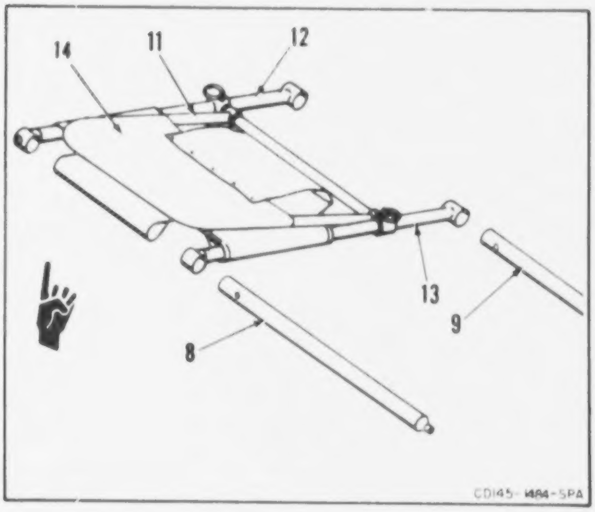
CD145-1564-SPA

15. **Slide front and rear tubes (8 and 9) through side tubes (12 and 13) and seat fabric (14).**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CD145-1484-SPA

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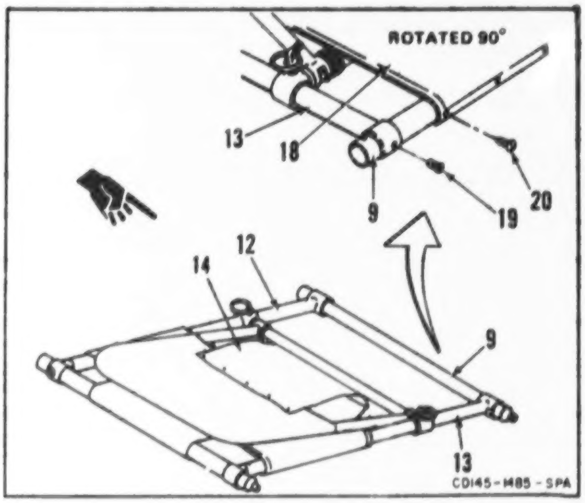
2-132 ASSEMBLE TROOP COMMANDER'S SEAT ACA4300 (Continued) 2-132

16. Install three screws (19) in side tubes (12 and 13) and in rear tube (9).
17. **Install five screws (20) in seat fabric (14)** and rear tube (9).


ROTATED 90°
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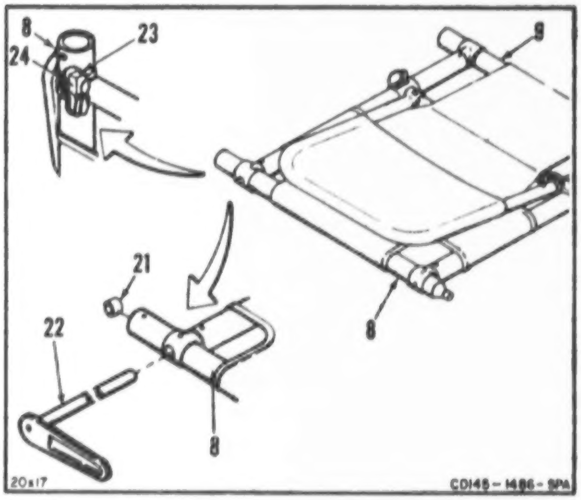
CD145-1485-SPA

18. **Install nylon bushings (21)** on front and rear tubes (8 and 9).
19. **Install handle (22)** through front and rear tubes (8 and 9).
20. Tighten setscrews (23) in actuator blocks (24) inside tubes (8 and 9).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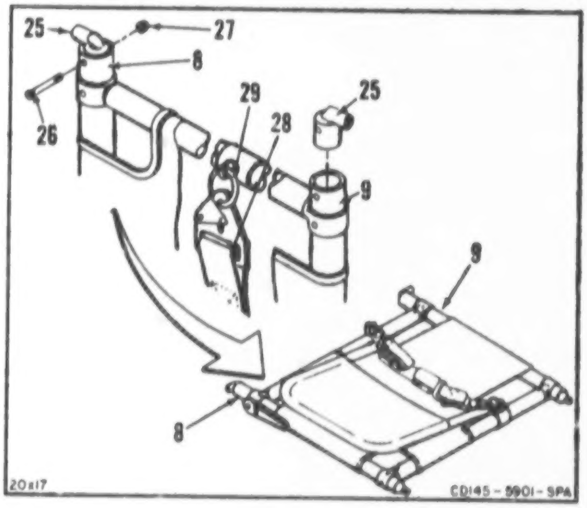
CD145-1486-SPA

21. **Position two hinges (25)** on ends of front and rear tubes (8 and 9).
22. **Install two screws (26)** and nuts (27) on hinges (25).
23. **Install seat belt (28)** on two retaining rings (29).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FOLLOW-ON MAINTENANCE:

Install troop commander's seat (Task 2-133).

END OF TASK

2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 2-132.1

INITIAL SETUP

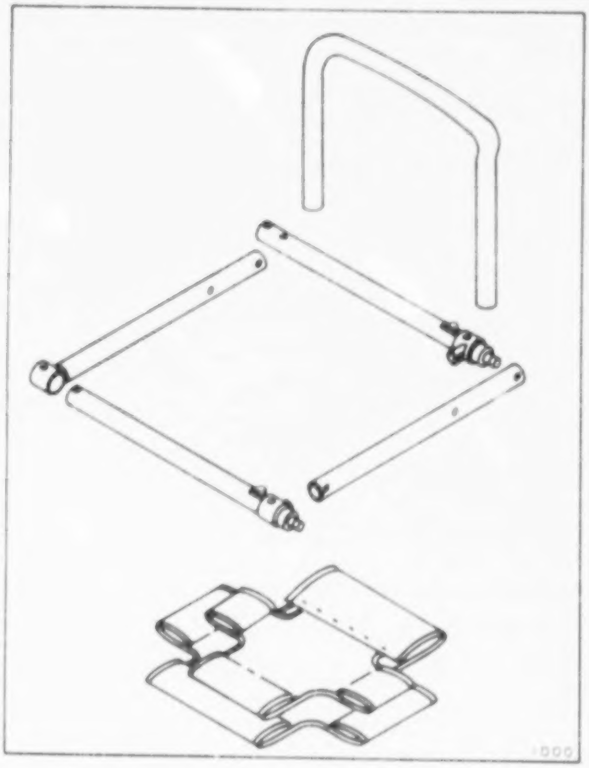
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloth (E120)
Solvent (E163)

Personnel Required:
Medium Helicopter Repairer (2)

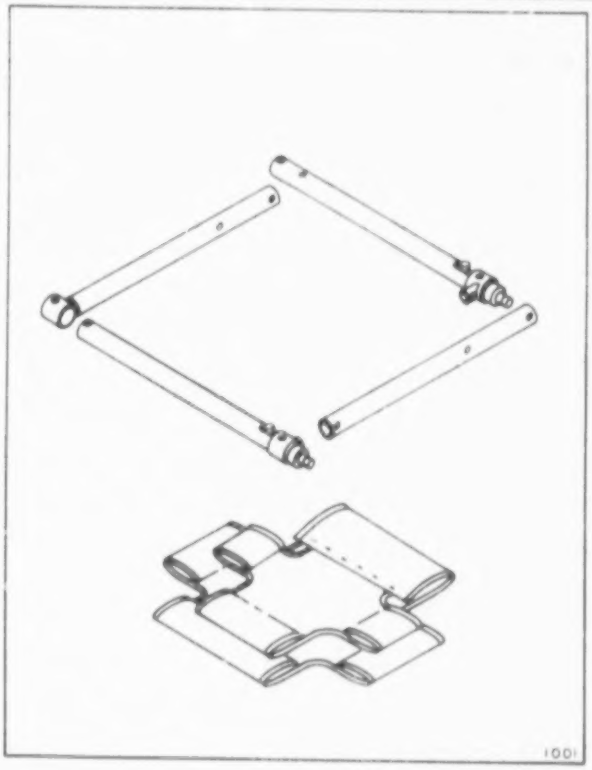
References:
TM 55-1520-240-23P



WARNING

Solvent (E163) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

1. **Clean** all **seat** assembly metal **tubes** with solvent (E163).
2. **Clean nylon seat fabric** with clean cloth (E120) damp with water.



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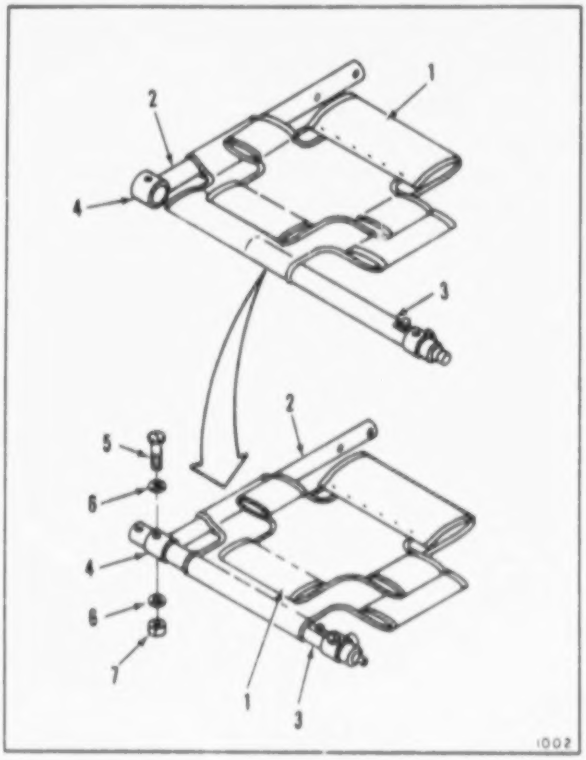
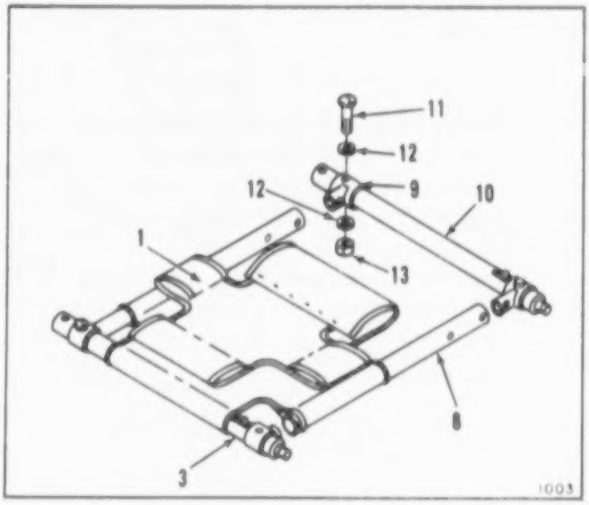
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-132.1

3. **Slide seat fabric (1) on side tube (2).**
4. **Slide front beam assembly (3)** through seat fabric (1) and **into side tube bracket (4).**
5. **Install bolt (5),** washers (6) and nut (7) through side tube bracket (4) and front beam assembly (3).



6. **Slide side tube (8) through seat fabric (1) and onto front beam assembly (3).**
7. **Position hinge (9)** on rear beam assembly (10).
8. **Install bolt (11),** washers (12) and nut (13) through hinge (9) and rear beam assembly (10).



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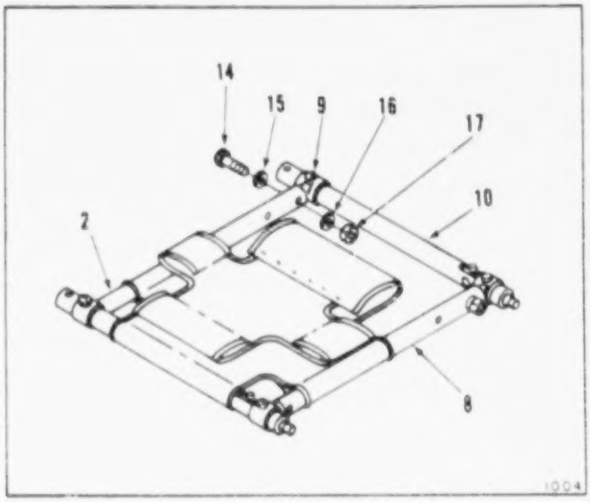
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-132.1

9. **Position rear beam assembly (10)** on side tubes (2 and 8).
10. **Install bolt (14)** washers (15 and 16), and nut (17) through side tube (2) and hinge (9).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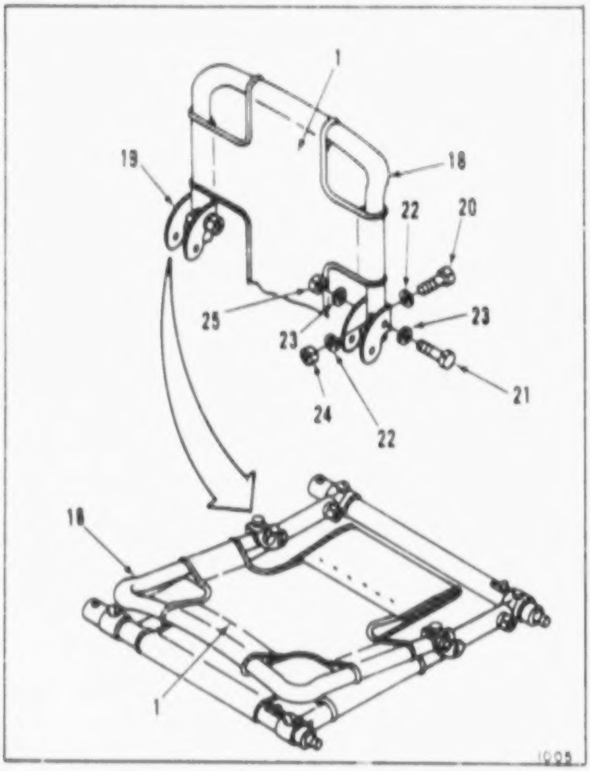
11. **Slide back frame assembly (18) through seat fabric (1).**
12. **Position two hinges (19)** on back frame assembly (18).
13. **Install bolts (20 and 21),** washers (22 and 23), and nuts (24 and 25) through hinges (19) and back frame assembly (18).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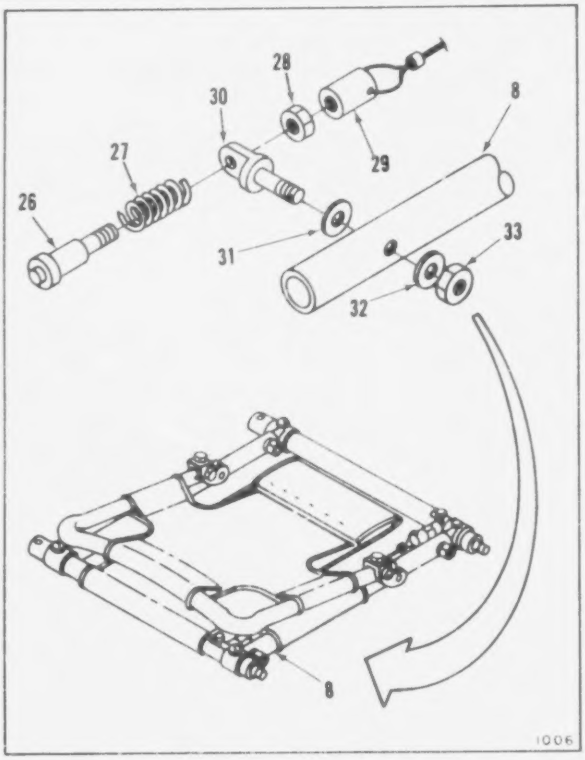
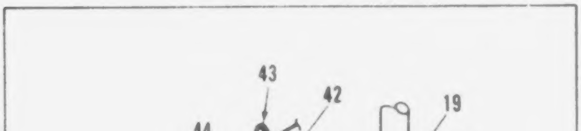
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-132.1

14. **Install two bolts (26)** springs (27), nuts (28)and adapters (29) in eye bolts (30). Do not tighten nuts (28).
15. **Depress bolts (26)** and springs (27) against eyebolts (30). Install eyebolts (30) through side tube (8). Secure with washers (31 and 32), and nuts (33).



16. **Position hinges (19)** on side tubes (2 and 8).
17. **Install bolt (34),** four washers (35), spacer (36), washer (37) and nut (38) (one under bolthead, one each between hinge (19) and side tube (2 or 8) and one under spacer).
18. **Install screw (39),** three washers (40), spacer (41), washer (42), thumbscrew (43), and cotter pin (44) (one each between hinge (19) and side tube (2 or 8), and one under spacer).



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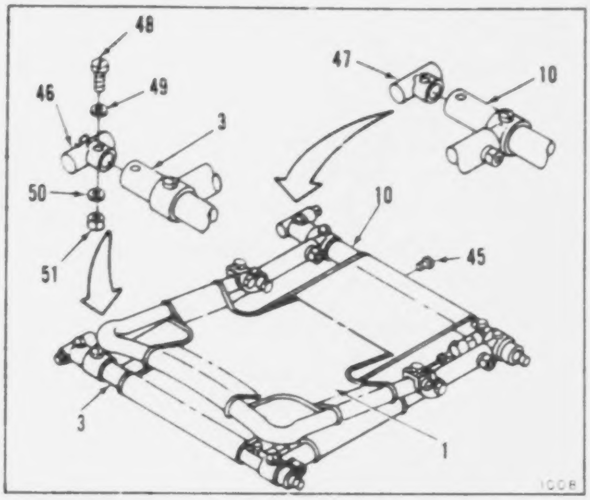
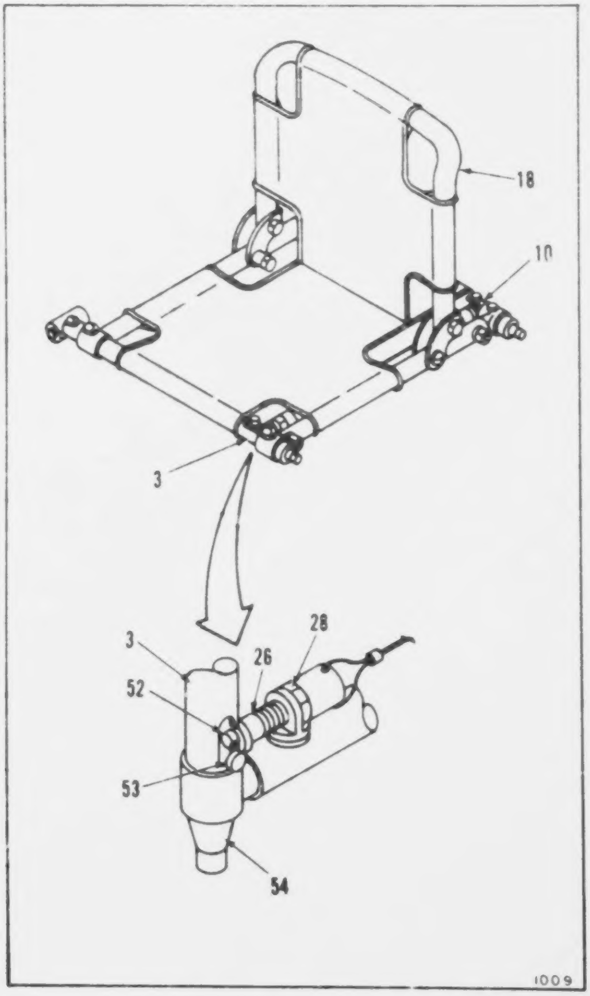
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-132.1

19. **Install six screws (45)** in seat fabric (1) and rear beam assembly (10).
20. **Position two hinges (46 and 47)** on ends of front and rear beam assemblies (3 and 10).
21. **Install two bolts (48),** washers (49 and 50) and nuts (51).



22. **Have helper position** and hold **back frame assembly (18)** in the upright position.
23. **Hold nuts (28) and adjust bolts (26)** in or out until bolt head plungers (52) are engaged in front and rear beam assemblies (3 and 10).
24. **Slide two knobs (53) forward** until bolt assemblies (54) are fully extended.
25. **Release two knobs (53).** Bolt assemblies (54) shall remain in the extended position.



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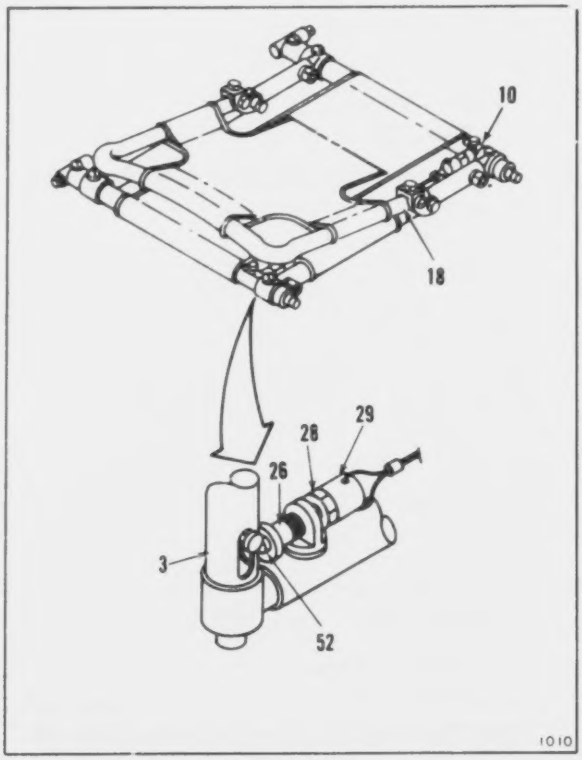
2-132.1 ASSEMBLE TROOP COMMANDER'S SEAT A-6632 (Continued) 2-132.1

26. Have helper **position back frame assembly (18)** in the stowed position.
27. Hold nuts (28) and **adjust bolts (26)** until bolt head plungers (52) retract from front and rear beam assemblies (3 and 10).
28. Hold adapters (29) and **tighten nuts (28)** against adapters.

FOLLOW-ON MAINTENANCE:

Install troop commanders seat. (Task 2-133).



END OF TASK

2-133 INSTALL TROOP COMMANDER'S SEAT 2-133

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

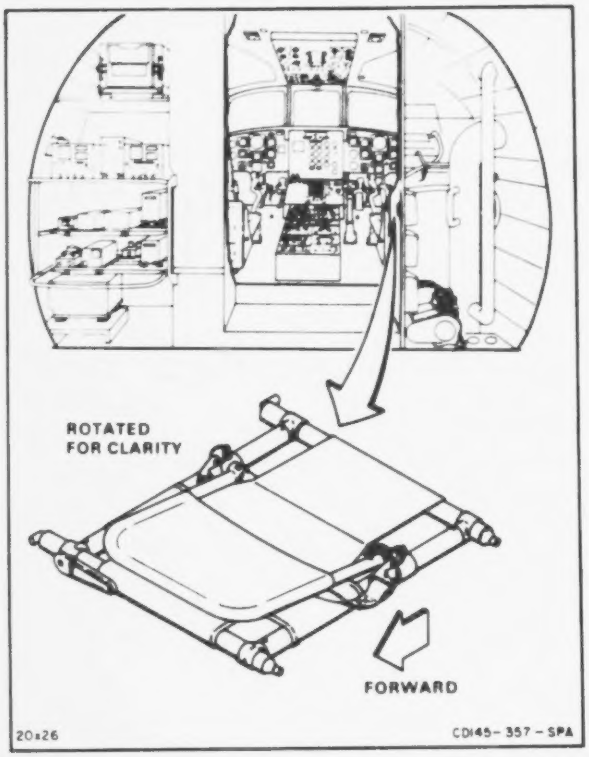
None

Personnel Required:

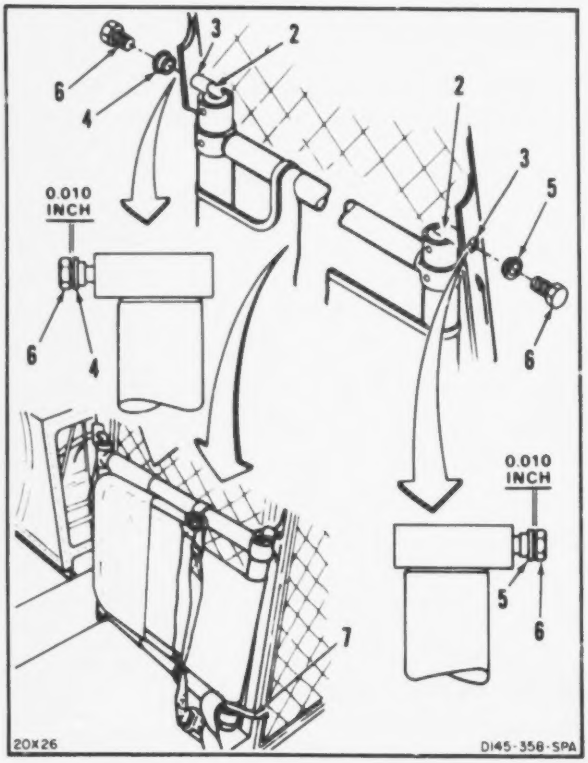
67U10 Medium Helicopter Repairer

References:

TM 55-1520-240-23P


ROTATED FOR CLARITY
FORWARD
20x26
CD145-357-SPA

1. **Position commander's seat (1)** and hinges (2) up between two hinge brackets (3).
2. **Align holes in two brackets (3)** and two hinges (2).
3. **Install 5/16-inch bushing (4)** on cockpit side.
4. **Install 1/4-inch bushing (5)** on cabin side.
5. **Install two bolts (6).** Make sure gap is 0.010-inch between bushing (4) and head of bolt (6). Make sure gap is 0.010-inch between bushing (5) and head of bolt (6).
6. Make sure seat (1) swings up and down freely on hinges (2). If not, check bolts (6) and bushings (4 and 5).
7. Swing seat (1) down into stowed position. Fasten stowage strap (7).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20X26
D145-358-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-134 STOW TROOP COMMANDER'S SEAT 2-134

INITIAL SETUP

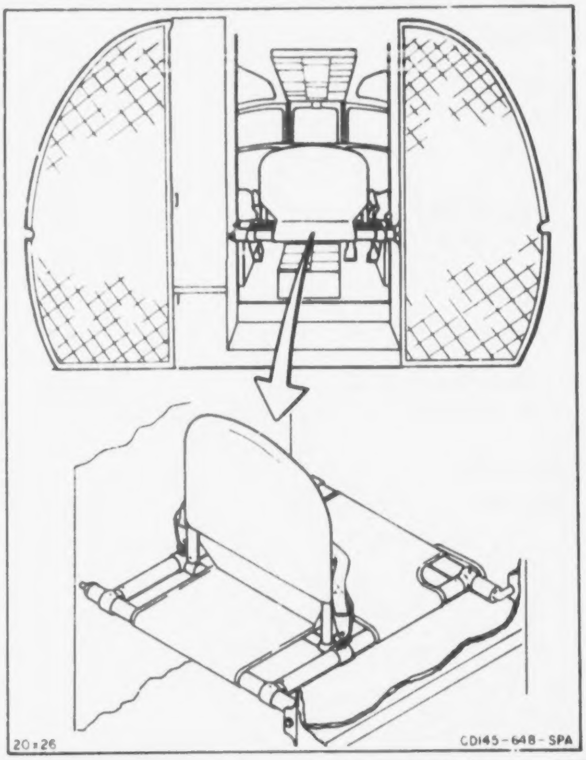
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Seat in Normal Position (Task 2-135)



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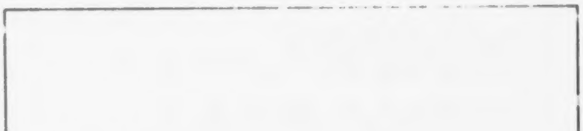
1. Fold seat back (1) down.
2. **Turn seat handle (2) to up** position so two pins (3) slide out of two keyways (4).



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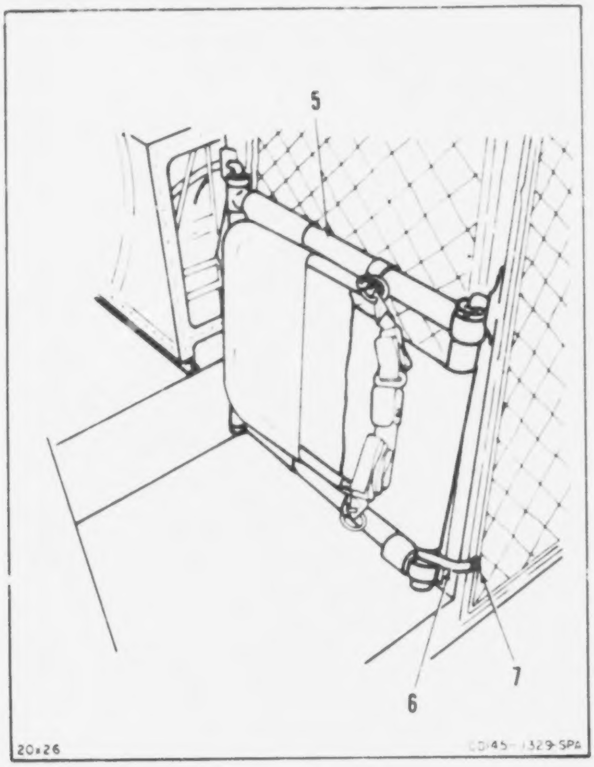
2-134 STOW TROOP COMMANDER'S SEAT (Continued) 2-134

3. **Fold seat (5) down** against wall on right side of passageway.
4. Put stowage strap (6) around lower part of seat (5) and secure to stud (7).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-135 POSITION TROOP COMMANDER'S SEAT FOR USE (UNSTOW) 2-135

INITIAL SETUP

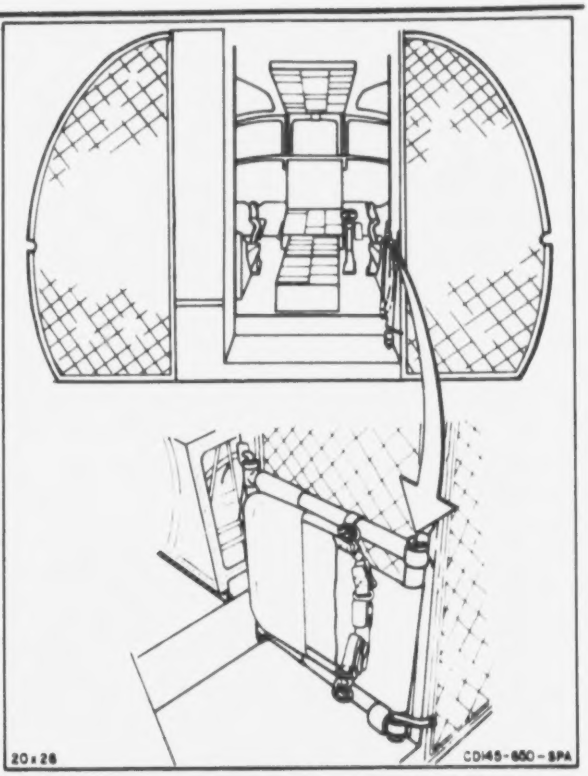
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off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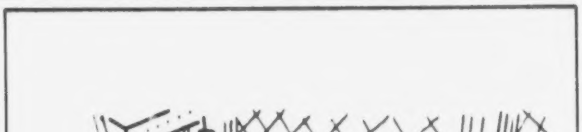
CDI45-650-SPA

1. **Remove stowage strap (1)** from stud (2).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CDI45-651-SPA

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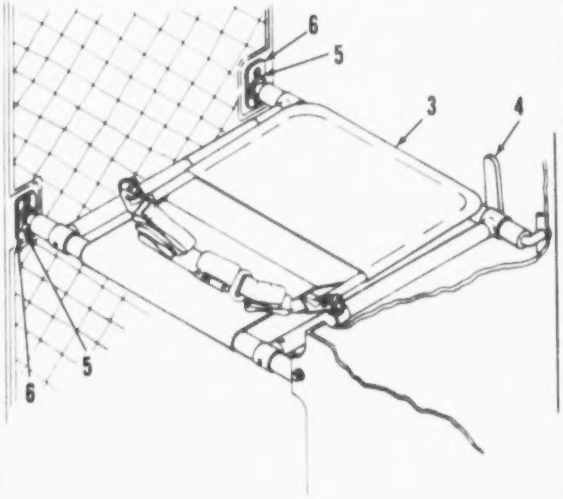
2-135 POSITION TROOP COMMANDER'S SEAT FOR USE (UNSTOW) (Continued)

2. **Raise seat frame (3)** from stowed position.
3. **Turn seat handle (4) to up position.** Slide two pins (5) down from two holding pads (6). Hold in normal position.


6
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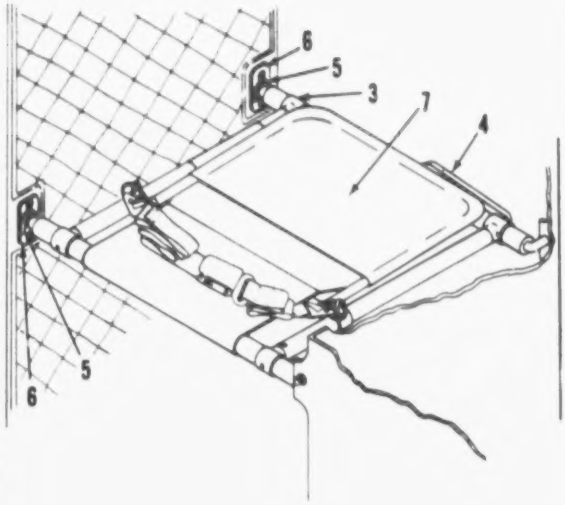
20x26
CD145-1327-SPA

4. **Release handle (4).** Two pins (5) slide into two holding pads (6).
5. **Make sure seat frame (3) is locked** in position.
6. Raise seat back (7).

FOLLOW-ON MAINTENANCE:

None


6
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20x26
CD145-1328-SPA

END OF TASK

2-136 REMOVE COCKPIT REARVIEW MIRROR 2-136

INITIAL SETUP

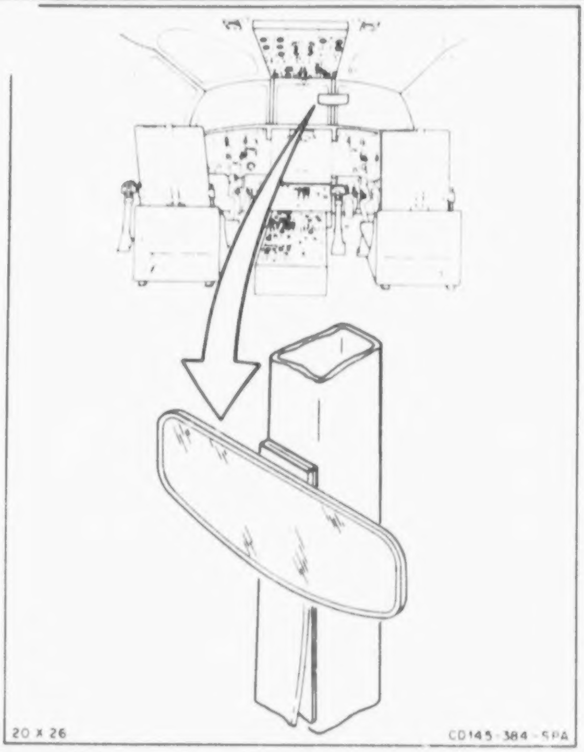
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

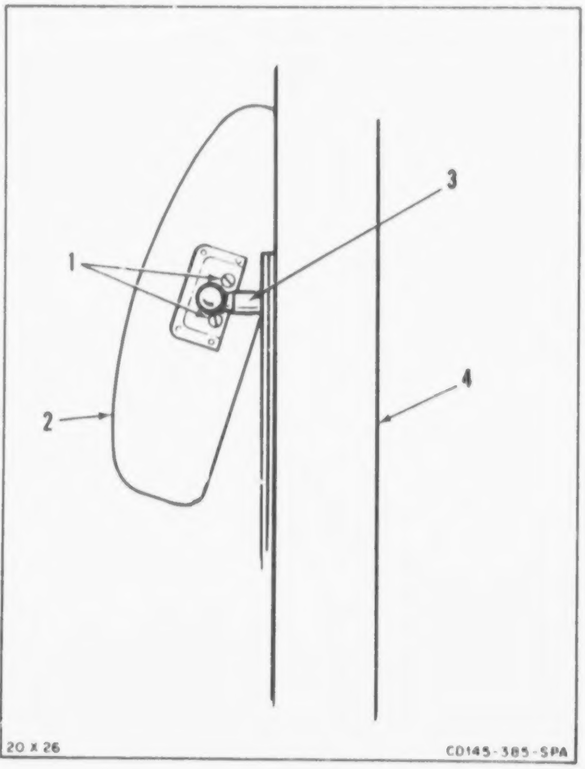
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



1. Loosen two screws (1).
2. Turn mirror (2) nearly vertical.
3. Remove stud (3) from support (4).
4. Remove mirror (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-137 INSTALL COCKPIT REARVIEW MIRROR 2-137

INITIAL SETUP

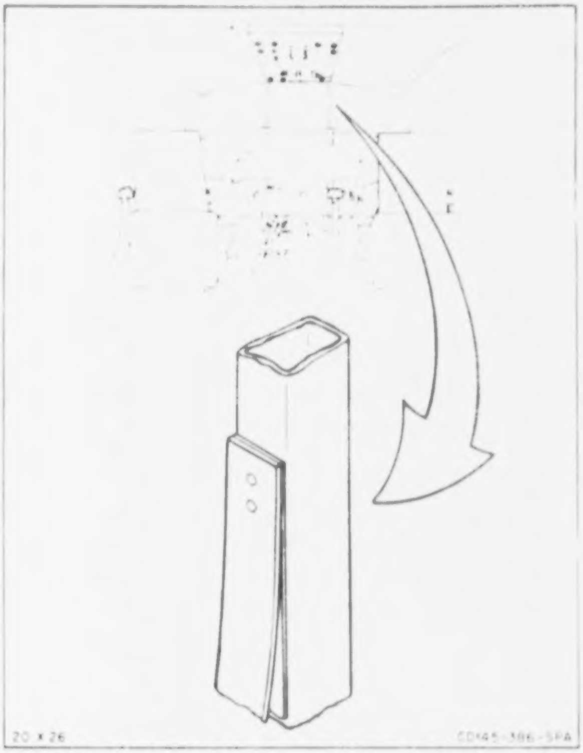
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

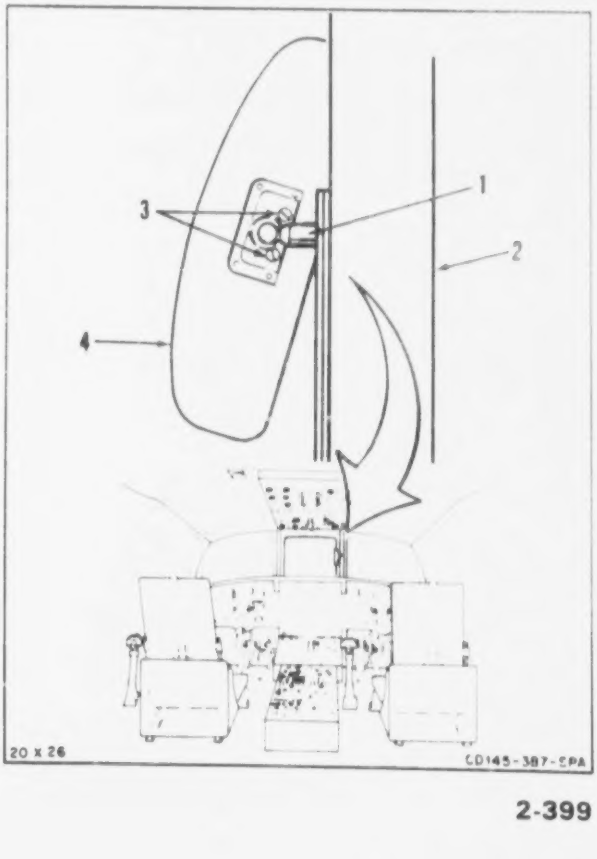
References:
TM 55-1520-240-23P


20 x 26
CD145-386-SPA

1. Install stud (1) on windshield support (2).
2. Tighten two screws (3) on mirror (4).

FOLLOW-ON MAINTENANCE:

Adjust as required


3
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2
4
20 x 26
CD145-387-SPA

END OF TASK

2-138 REMOVE NOSE ACCESS DOOR 2-138

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Workstand

Materials:

None

Personnel Required:

67U10 Medium Helicopter Repairer

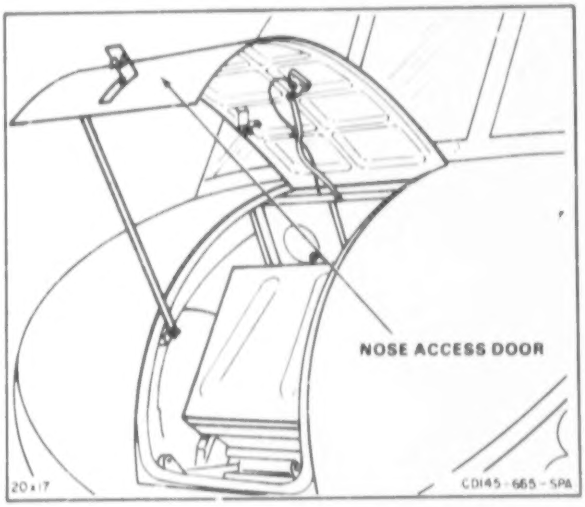
Equipment Condition:

Battery Disconnected (Task 1-39)

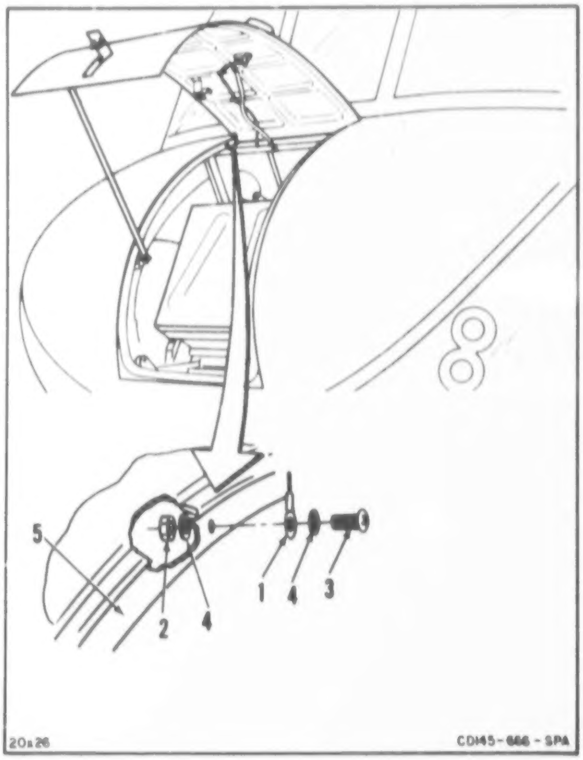
Electrical Power Off

Hydraulic Power Off

Nose Access Door Open (Task 2-2)


NOSE ACCESS DOOR
20x17
CDI45-665-SPA

1. **Disconnect electrical lead (1)** as follows:
   a. Remove nut (2).
   b. Remove screw (3), and two washers (4).
   c. Disconnect end of electrical lead (1) from structure (5).


5
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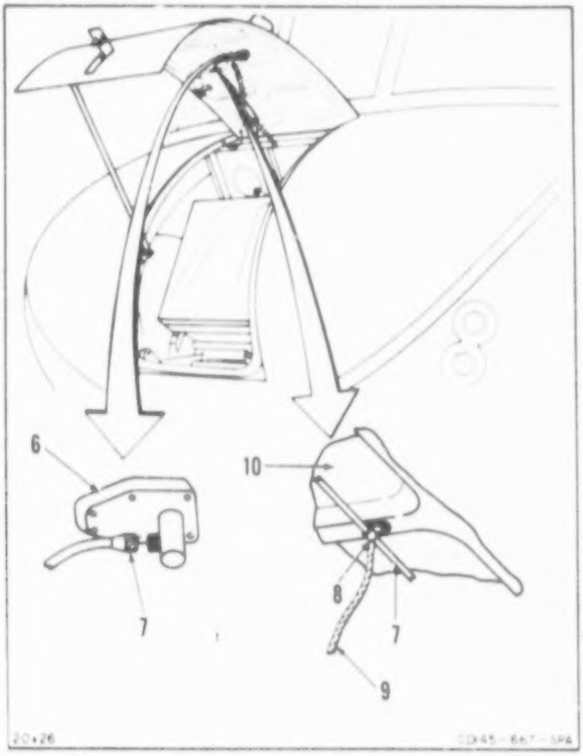
20x26
CDI45-666-SPA

GO TO NEXT PAGE

2-138 REMOVE NOSE ACCESS DOOR (Continued) 2-138

2. **Disconnect antenna (6)** as follows.
   a. Unplug antenna cable (7).
   b. Remove three clamps (8) that hold cable (7) and strap (9) to door (10).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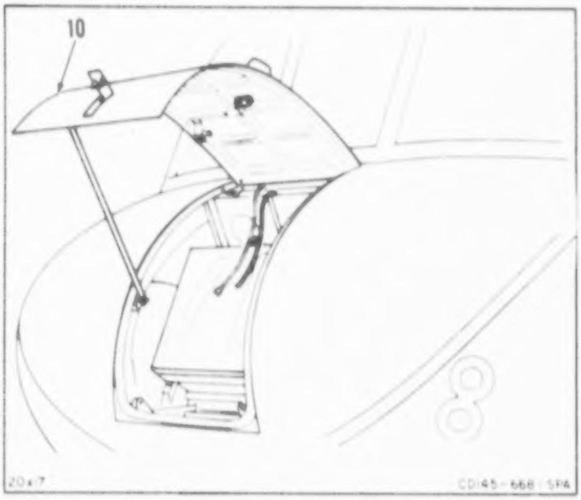
20x26
CD45-667-SPA

3. **Lower door (10).**


10
20x7
CD145-668-SPA

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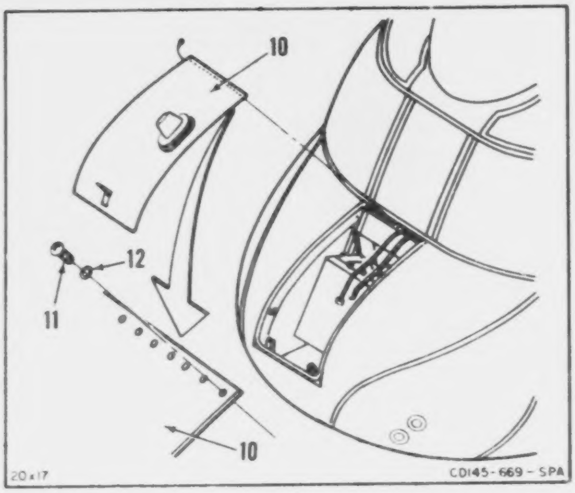
2-138 REMOVE NOSE ACCESS DOOR (Continued) 2-138

4. **Remove 15 screws (11) and washers (12) from door (10).**


10
12
11
10
20x17
CD145-669-SPA

5. **Remove door (10).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-139 REMOVE NOSE DYNAMIC ABSORBER 2-139

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Handling Adapter (T84)
Hoist, Minimum 300 Pounds Capacity
Lifting Shackle
Wire Rope Ring (E18)
Workstand

Materials:

None

Personnel Required:

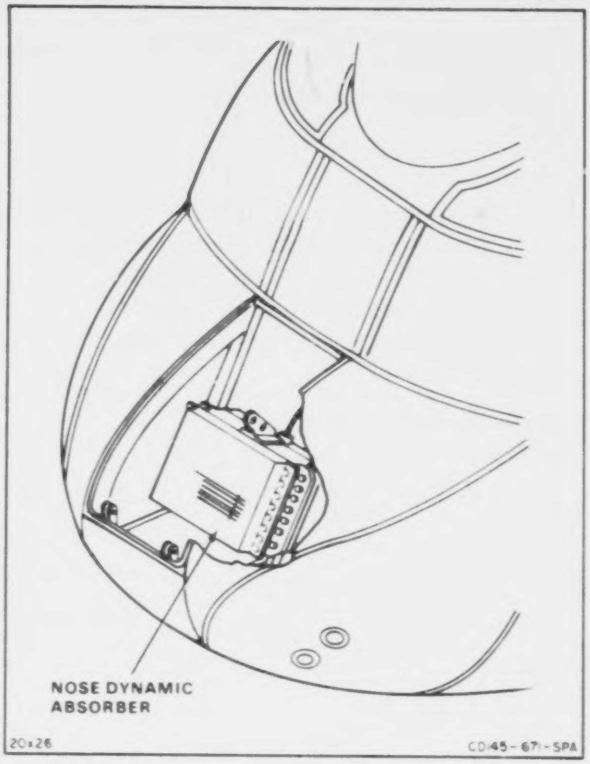
Medium Helicopter Repairer (2)

References:

Task 2-140
Appendix E

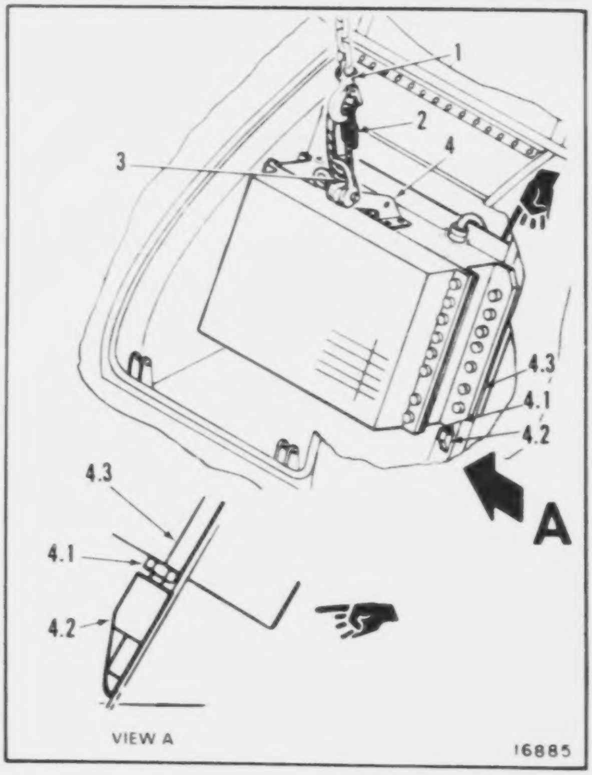
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Nose Access Door Removed (Task 2-138)
Handling Adapter Installed on Transportation Trailer (Task 2-140)



1. **Attach hoist (1),** wire rope ring (E18) (2), and shackle (3) to forward hole in bracket (4).

1.1. Back two bolts (4.1) away from stops (4.2) until they firmly contact mounting flange (4.3).



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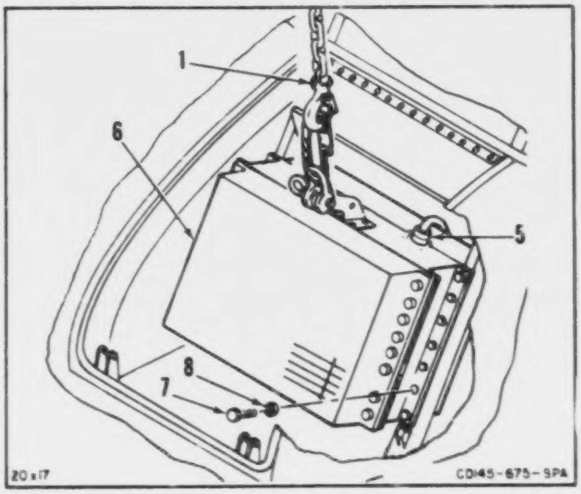
2-139 REMOVE NOSE DYNAMIC ABSORBER (Continued) 2-139

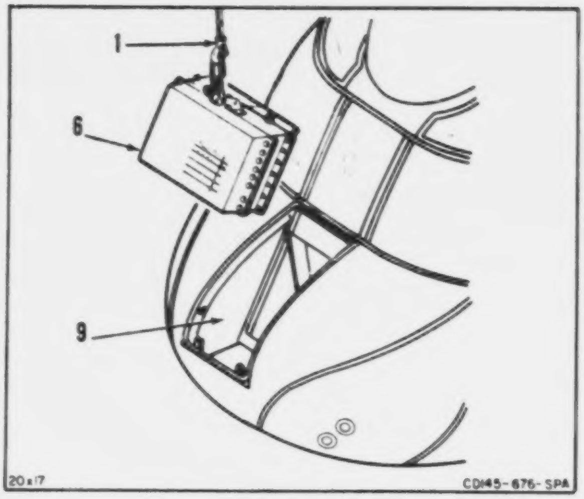


2. **Disconnect electrical connector (5).**

WARNING

Absorber is heavy and can injure personnel if it drops when bolts are removed. Absorber must be supported by hoist and moved carefully to prevent injury to personnel.

3. Make sure weight of absorber (6) is supported by hoist (1).
4. Remove 14 bolts (7) and washers (8).



CAUTION

Nose compartment and absorber can be damaged. Move absorber slowly and carefully to prevent it from hitting sides of nose compartment.

5. Raise lower left side of absorber (6) up and out of nose compartment (9). **Lift absorber (6)** from nose compartment (9) with hoist (1). With aid of helper, guide absorber.

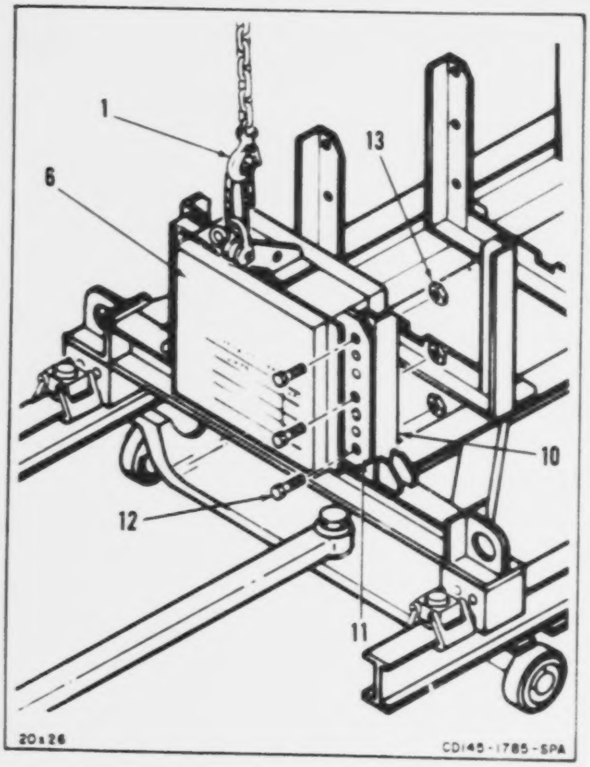
GO TO NEXT PAGE

2-139 REMOVE NOSE DYNAMIC ABSORBER (Continued) 2-139

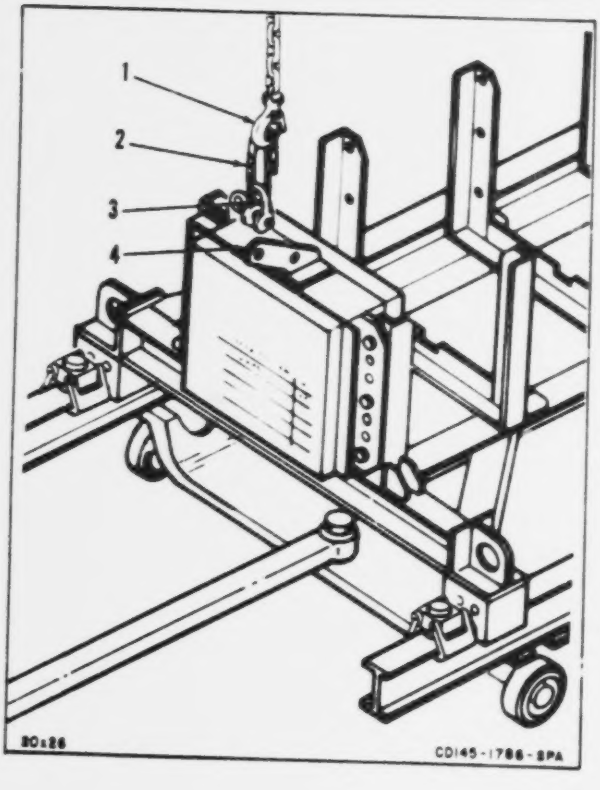
CAUTION

Absorber cover cannot support weight of absorber. To prevent damage to cover, absorber must be set down so weight is supported by mounting flanges.

6. **Lower absorber (6) on handling adapter (10)** with hoist (1). With aid of helper, guide absorber. Position absorber so mounting flanges (11) rest on handling adapter.
7. **Secure absorber (6) to handling adapter (10).** Install three bolts (12) and nuts (13) in flange (11) and adapter (10) on both sides.



8. Remove hoist (1), wire rope ring (E18) (2), and shackle (3) from bracket (4).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-140 INSTALL DYNAMIC ABSORBER ADAPTER ON TRAILER 2-140

INITIAL SETUP

Applicable Configurations:
All

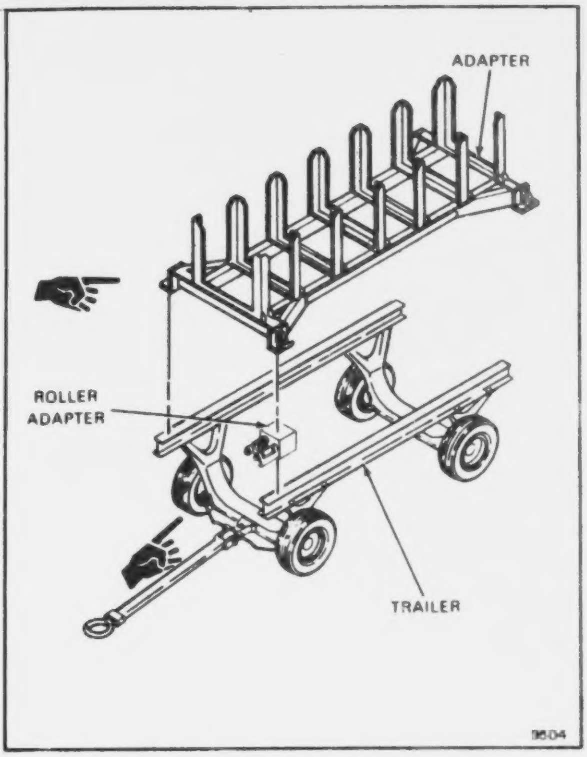
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Transportation Trailer 2000
Roller Adapter 2550 (4)

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM 55-1520-240-23P

Equipment Condition:
Off Helicopter Task



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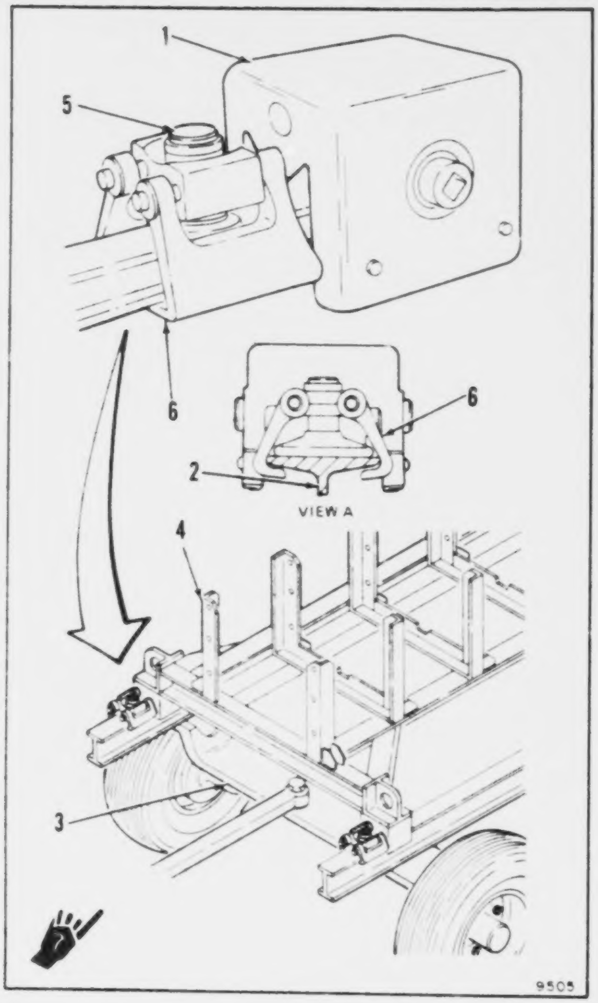
2-140 INSTALL DYNAMIC ABSORBER ADAPTER ON TRAILER (Continued) 2-140

1. **Fit four roller adapters (1) on two rails (2) of trailer (3).**
2. With aid of helper, **position adapter (4) on trailer (3).**
3. **Turn fitting (5)** of each roller adapter (1) clockwise until clamp (6) fits tightly against rail (2).



FOLLOW-ON MAINTENANCE

None

END OF TASK

2-141 REPAIR NOSE COMPARTMENT ACCESS DOOR 2-141

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-11
Task 2-10

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Patch repair holes and stop-drilled cracks not more than limits in Task 2-10. Patching shall not affect edges of nose compartment door.
2. See Task 2-11 for examples of typical repairs to outer skin and inner pan.
3. For spotwelding repair to inner pan, refer to TM 55-1500-204-25/1.

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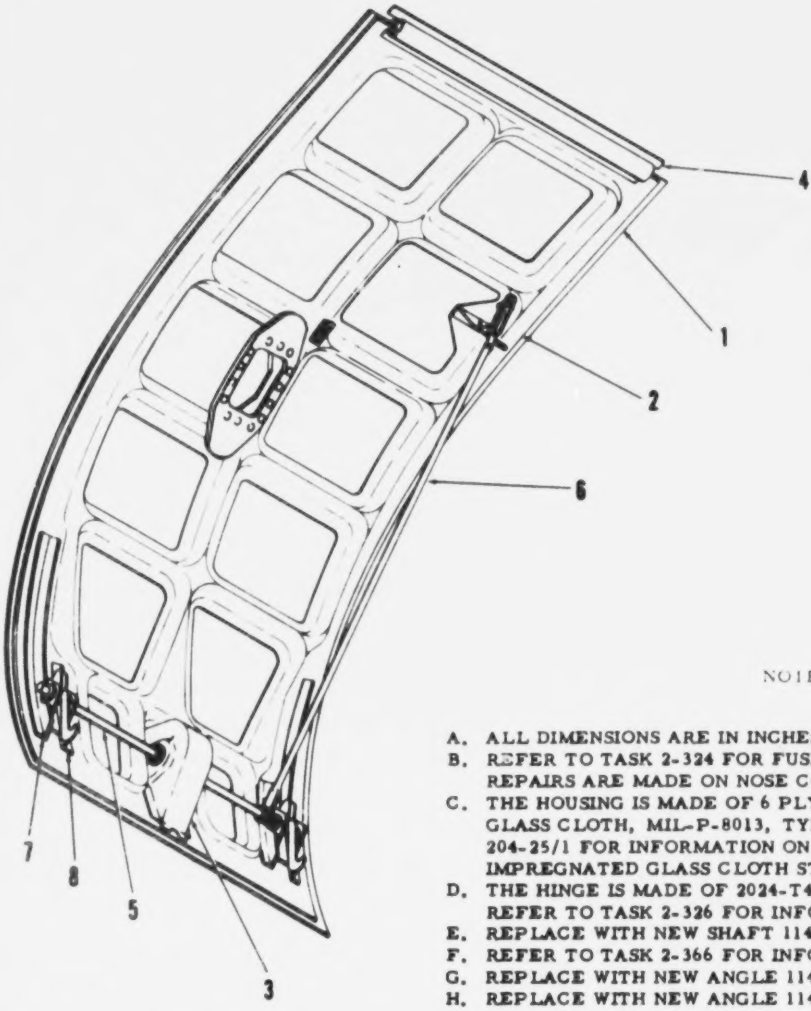
2-141 REPAIR NOSE COMPARTMENT ACCESS DOOR (Continued) 2-141



NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REFER TO TASK 2-324 FOR FUSELAGE SEALING WHEN REPAIRS ARE MADE ON NOSE COMPARTMENT DOOR ASSY
C. THE HOUSING IS MADE OF 6 PLYS OF 181 IMPREGNATED GLASS CLOTH, MIL-P-8013, TYPE I. REFER TO TM 55-1500-204-25/1 FOR INFORMATION ON REPAIR OF IMPREGNATED GLASS CLOTH STRUCTURES
D. THE HINGE IS MADE OF 2024-T4 ALUMINUM ALLOY EXTRUSION REFER TO TASK 2-326 FOR INFORMATION ON REPAIR OF HINGES
E. REPLACE WITH NEW SHAFT 114S1632-35
F. REFER TO TASK 2-366 FOR INFORMATION ON TUBE REPAIR
G. REPLACE WITH NEW ANGLE 114S1632-17 LH OR -18 RH
H. REPLACE WITH NEW ANGLE 114S1632-19 LH OR -20 RH

INDEX	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SKIN--OUTER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
2	SKIN--INNER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
3	HOUSING	NOTE C.	--
4	HINGE	NOTE D.	--
5	SHAFT	0.31 SQ ROLLED BAR 2024-T4	NOTE E.
6	STRUT	0.050 SMLS TUBE 0.035 6061-T6	NOTE F.
7	ANGLE	0.032 2024-T4 CLAD	NOTE G.
8	ANGLE	0.032 2024-T4 CLAD	NOTE H.

42 × 51

D145-9749-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-142 REMOVE DYNAMIC ABSORBER ADAPTER FROM TRAILER

INITIAL SETUP

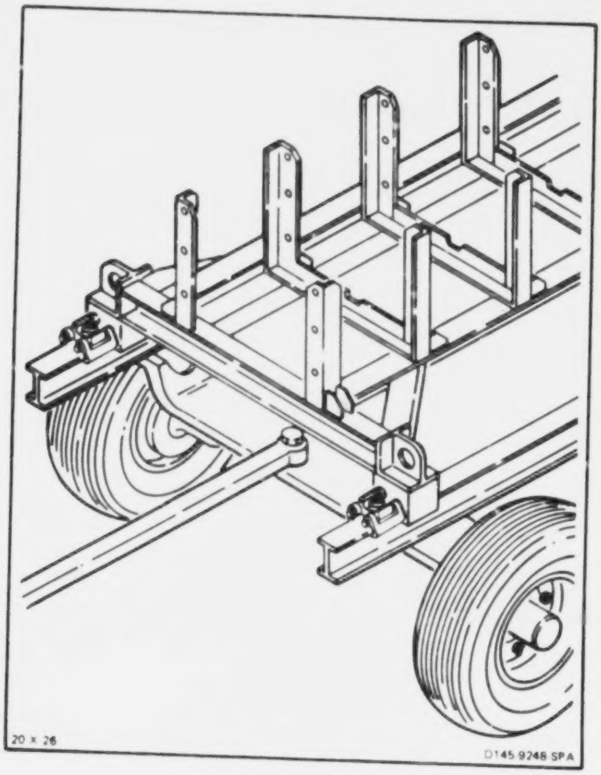
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Off Helicopter Task



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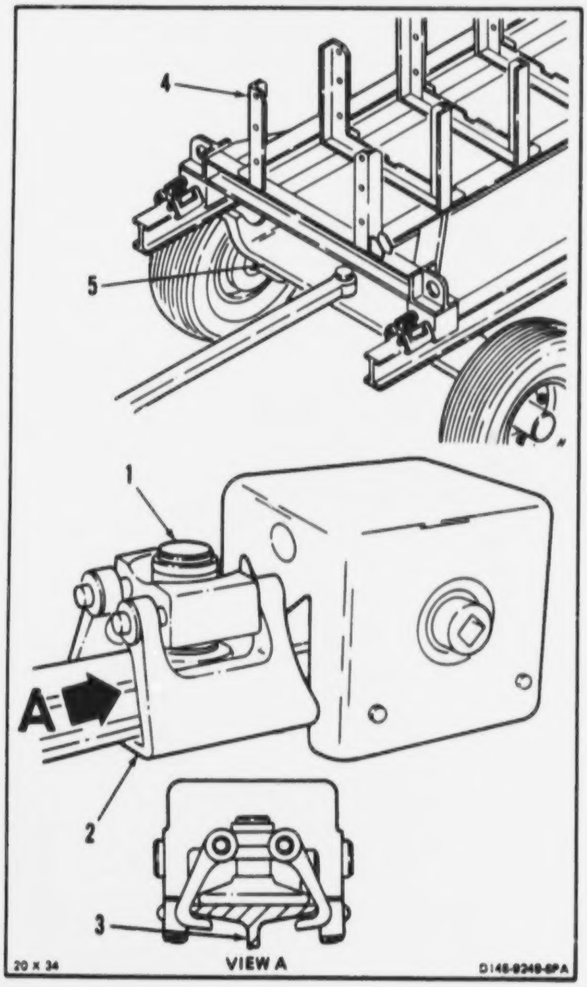
2-142 REMOVE DYNAMIC ABSORBER ADAPTER FROM TRAILER (Continued) 2-142

1. **Turn four fittings (1)** counter clockwise until all four clamps (2) clear two rails (3).
2. With aid of helper **lift adapter (4) from trailer (5).**

FOLLOW-ON MAINTENANCE:

None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D148-9249-6PA

END OF TASK

2-143 INSTALL NOSE DYNAMIC ABSORBER

INITIAL SETUP

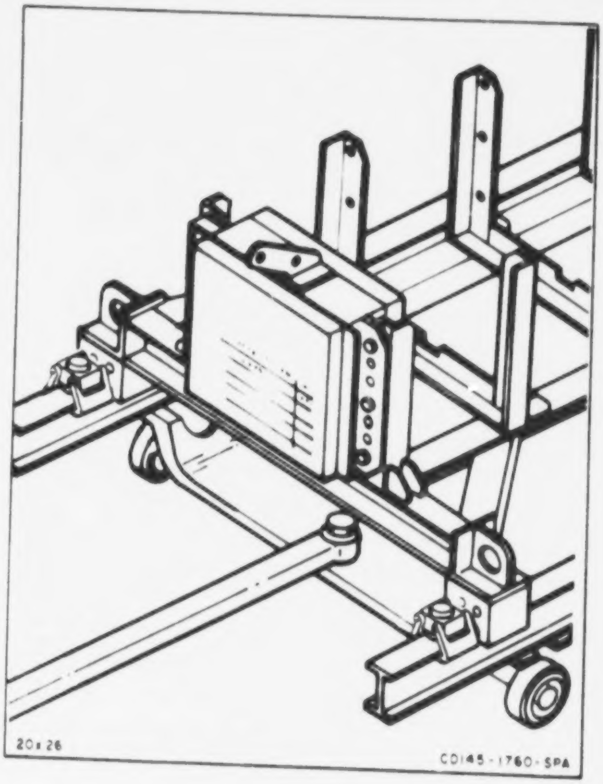
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Hoist, Minimum 300 Pounds Capacity
Lifting Shackle
Test Harness (T112)
Wire Rope Ring
Work Stand
Handling Adapter

Materials:
None

Personnel Required:
Medium Helicopter Repairer
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P
TM 55-1520-240-T



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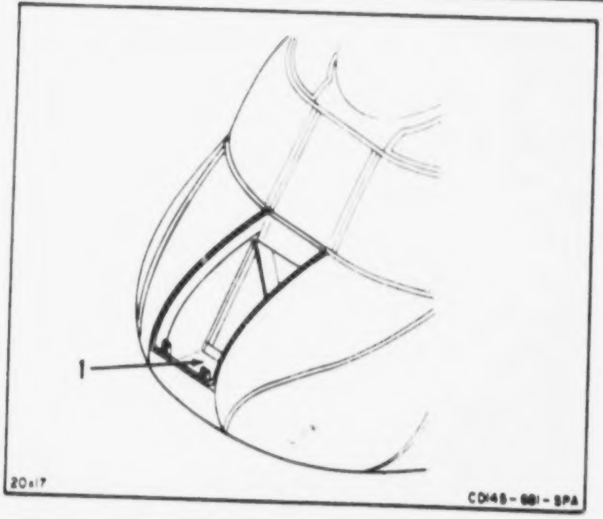
1. **Check dynamic absorber support structure (1).** There shall be no cracks, dents, broken or popped rivets.



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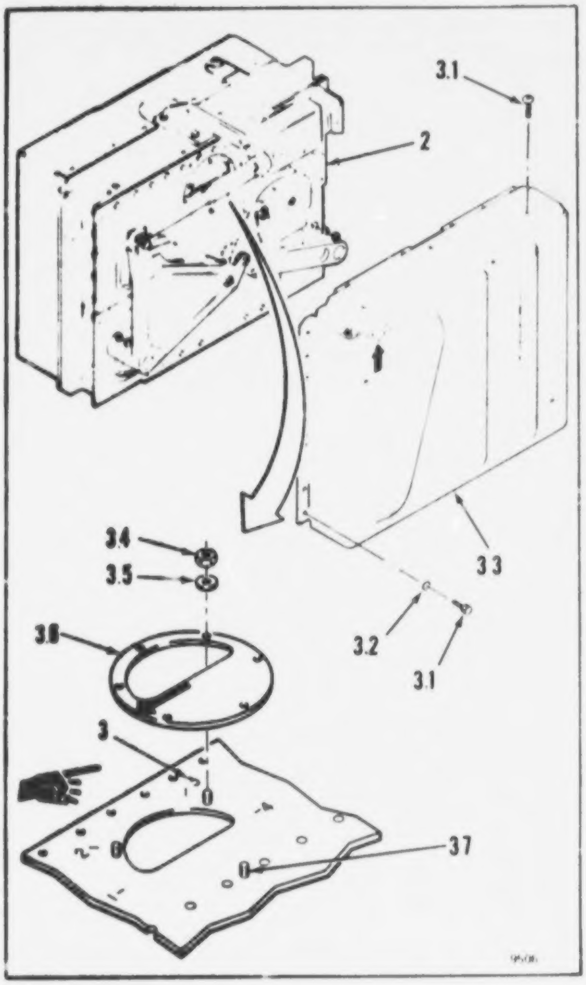
2-143 INSTALL NOSE DYNAMIC ABSORBER (Continued) 2-143

NOTE

Internal damping adjustment position of absorber is marked on absorber cover.

2. Select an absorber with internal damping adjustment set to position No. 3 (3). If an absorber with correct internal damping adjustment is unavailable, proceed as follows:
    a. **Remove screws (3.1)** and washers (3.2) from dust cover (3.3) **Remove dust cover** from absorber (2). Retain screws.
    b. **Remove three nuts (3.4)** and washers (3.5) from air damper cover plate (3.6). **Reposition cover plate on studs (3.7) from position No. 1 to position No. 3** and secure it with nuts and washers.
    c. Position dust cover (3.3) on frame of absorber (2) and **install washers (3.2) and screws (3.1).**
    d. Restencil dust cover (3.3) for internal damping position No. 3.



2-143 INSTALL NOSE DYNAMIC ABSORBER (Continued) 2-143

3. **Test dynamic absorber (2) (TM 55-1520-240-T).**

3.1 **Connect test harness (T112) (3.8)** to absorber (2) and helicopter.

CAUTION

Do not apply power to absorber until test harness is connected. Damage to cards within absorber can occur.

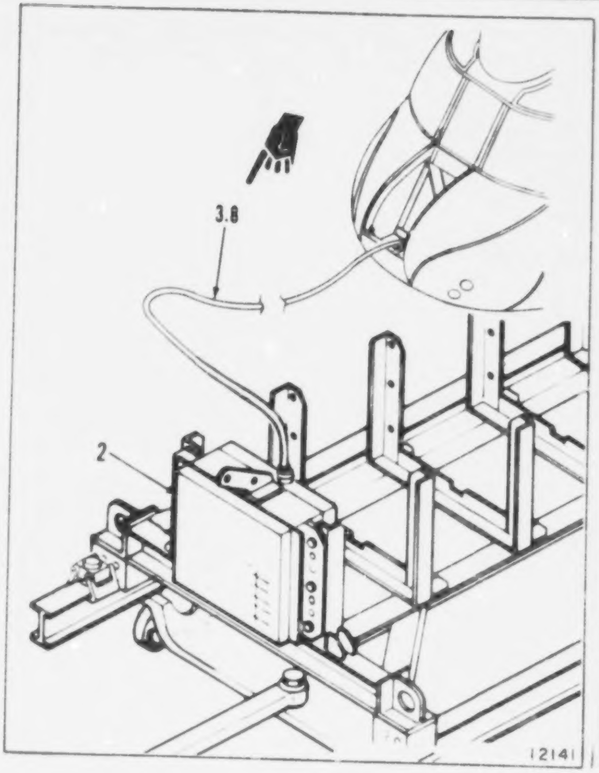
3.2 **Perform operational check of dynamic absorber (TM 55-1520-240-T).** If absorber (2) is good, go to step 4. If absorber is not good, do the following:

a. Shut down electrical power.

b. Disconnect test harness (T112) (3.8).

c. Turn in absorber (2); get another one. Go to step 2.

3.3 **Disconnect test harness (T112) (3.8).**



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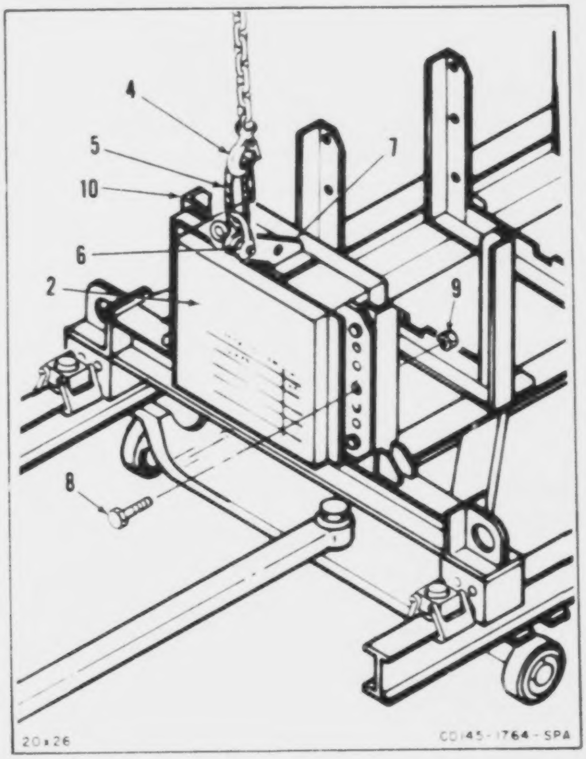
2-143 INSTALL NOSE DYNAMIC ABSORBER (Continued) 2-143

4. **Install hoist (4),** wire rope ring (5), and shackle (6) to forward hole in bracket (7).

WARNING

Take up slack from hoist.

5. **Remove six nuts (8) and bolts (9) and lift absorber (2) from handling adapter (10).**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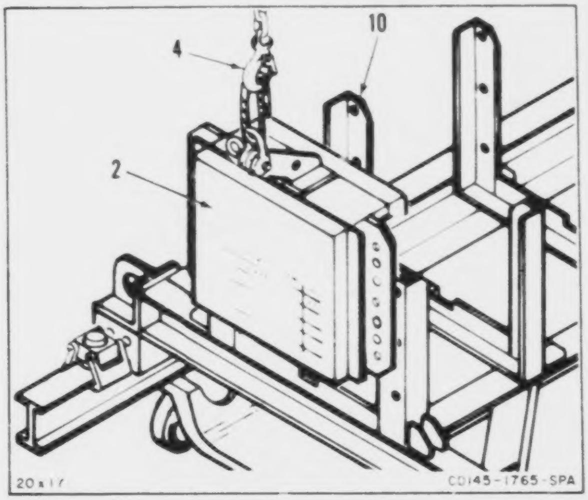
WARNING

Absorber is heavy and can injure personnel if it drops. Absorber must be supported by hoist and moved carefully to prevent injury to personnel.

6. **Lift absorber (2) from handling adapter (10),** using hoist (4). With aid of helper, guide absorber.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CD145-1765-SPA

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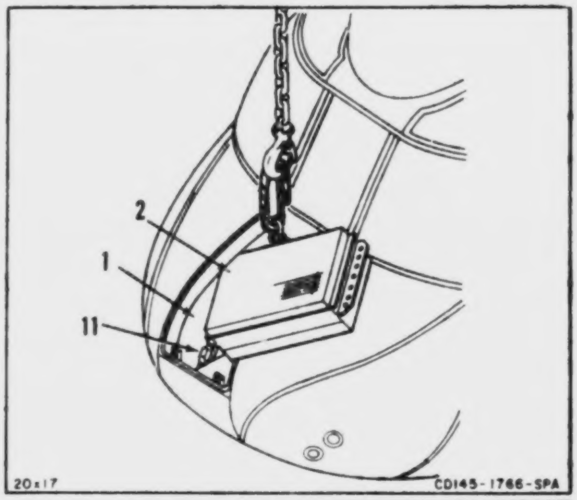
2-143 INSTALL NOSE DYNAMIC ABSORBER (Continued) 2-143

CAUTION

Nose compartment and absorber can be damaged. Move absorber slowly and carefully to prevent it from hitting sides of compartment.

7. **Guide upper left side of absorber (2) into support structure (1) first.**
8. **Lower absorber (2) into support structure (1).** With aid of helper, guide absorber onto two stops (11).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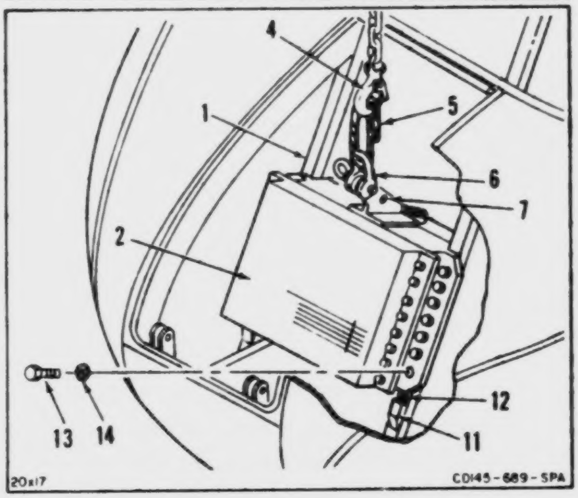
CD145-1766-SPA

9. **Secure absorber (2)** as follows:
   a. Adjust two bolts (12) to align bolt holes through absorber (2) and structure (1).
   b. Install 14 bolts (13) and washers (14).
10. **Tighten two bolts (12)** all the way against stops (11).
11. **Remove hoist (4),** wire rope ring (5), and shackle (6) from bracket (7).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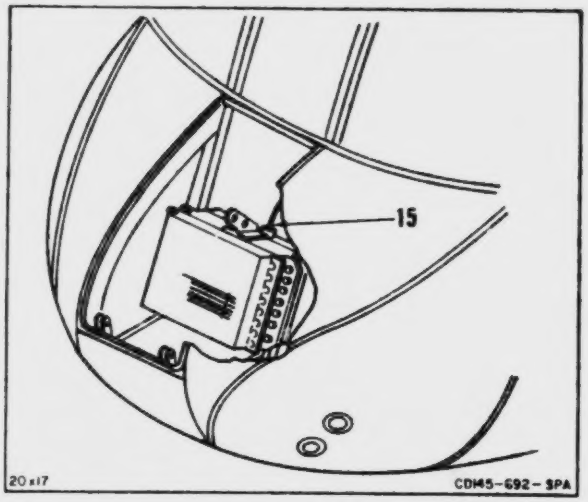
CD145-689-SPA

12. **Connect electrical connector (15).**


15
20x17
CD145-692-SPA

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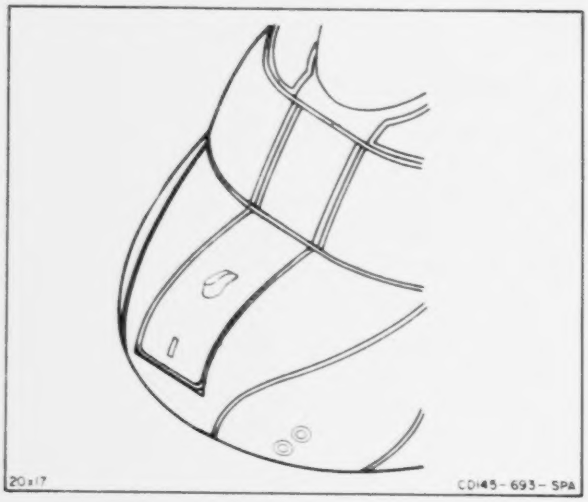
2-143 INSTALL NOSE DYNAMIC ABSORBER (Continued) 2-143

INSPECT

FOLLOW-ON MAINTENANCE:

Install nose access door (Task 2-144).

Remove handling adapter from transportation trailer (Task 2-142).



END OF TASK

2-144 INSTALL NOSE ACCESS DOOR 2-144

INITIAL SETUP

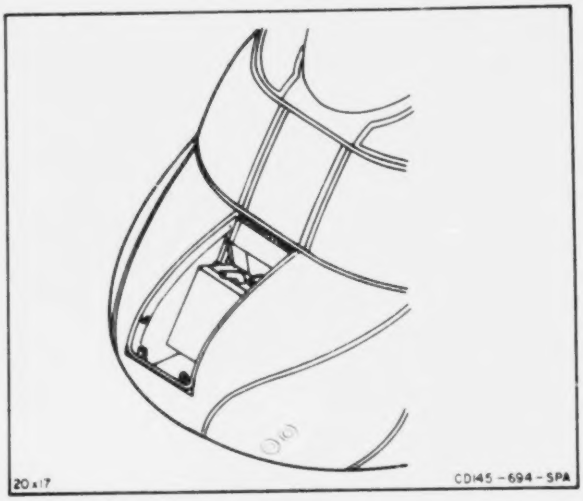
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

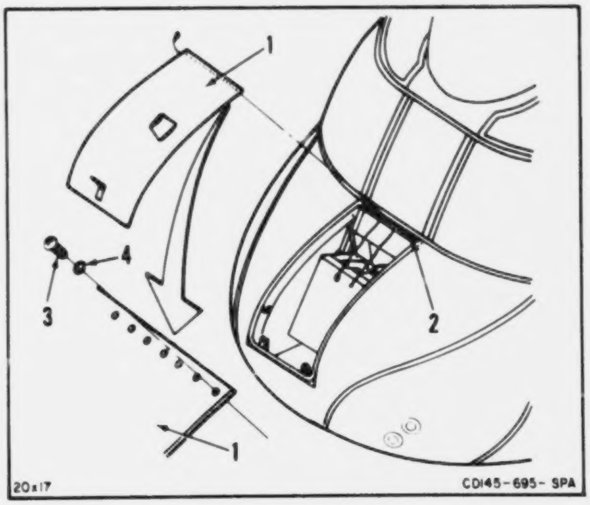
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 2-2



1. **Position door (1) over opening.** Align holes in hinge (2) and door.
2. **Install 15 screws (3) and washers (4)** in door (1) and hinge (2).



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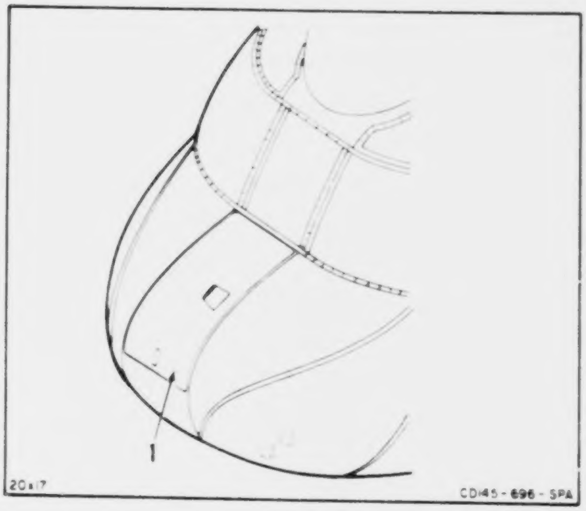
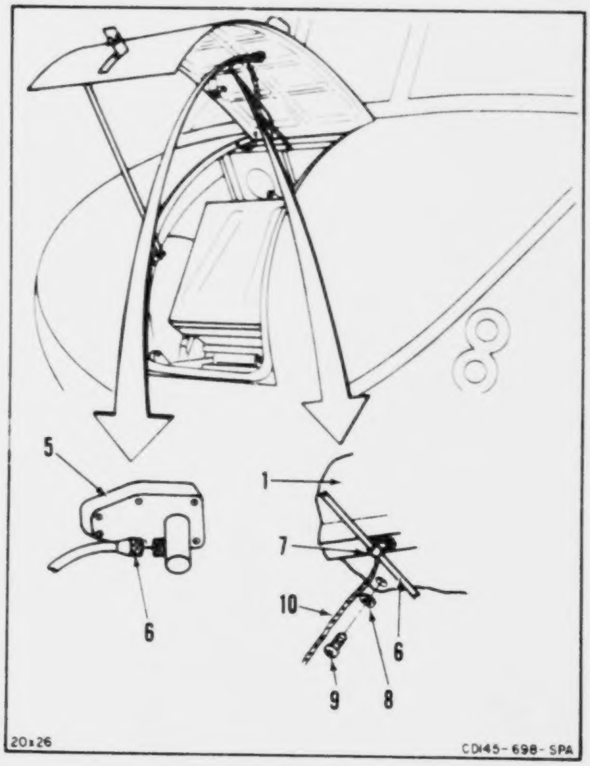
2-144 INSTALL NOSE ACCESS DOOR (Continued) 2-144

3. **Open door (1) (Task 2-2).**


1
20x17
CD145-696-SPA

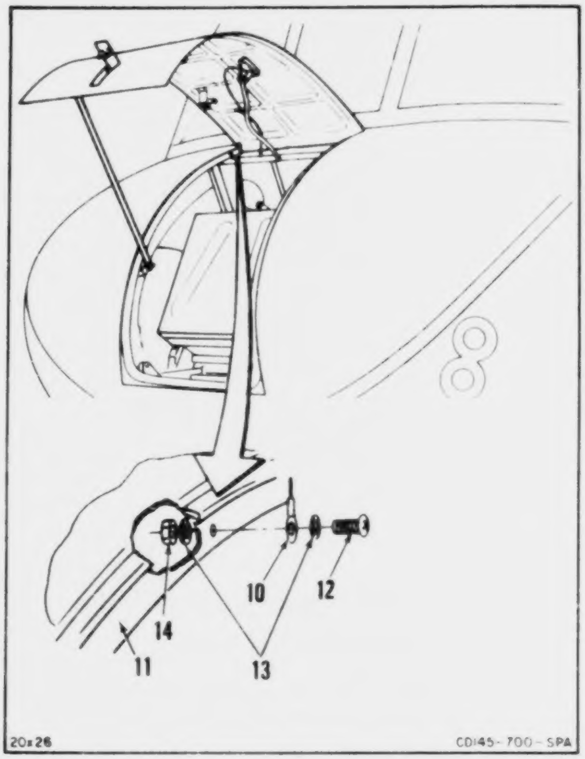
4. **Connect antenna (5)** as follows:
   a. Plug cable (6) in antenna (5).
   b. Install three clamps (7), washers (8), and screws (9), to hold cable (6) and strap, (10) to door (1).


5
6
1
7
10
6
9
8
20x26
CD145-698-SPA

GO TO NEXT PAGE

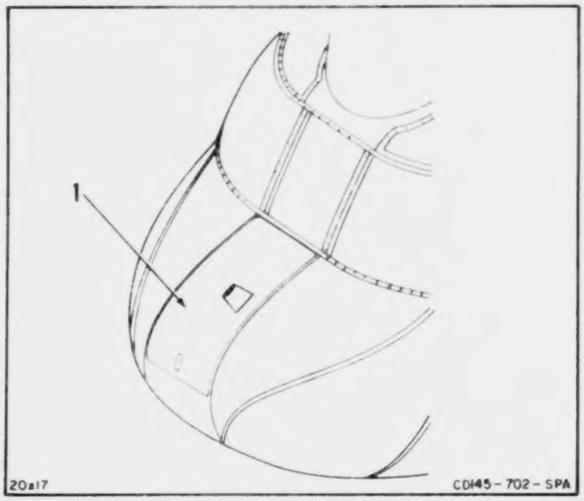
2-144 INSTALL NOSE ACCESS DOOR (Continued) 2-144

5. **Connect electrical lead (10)** as follows:
   a. Align screw holes through electrical lead (10) and structure (11).
   b. Install screw (12) and two washers (13).
   c. Install nut (14) on screw (12).


10
12
14
11
13
20x26
CDI45-700-SPA

INSPECT

6. **Close door (1) (Task 2-2).**


1
20x17
CDI45-702-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-145 REMOVE COCKPIT DYNAMIC ABSORBER 2-145

INITIAL SETUP

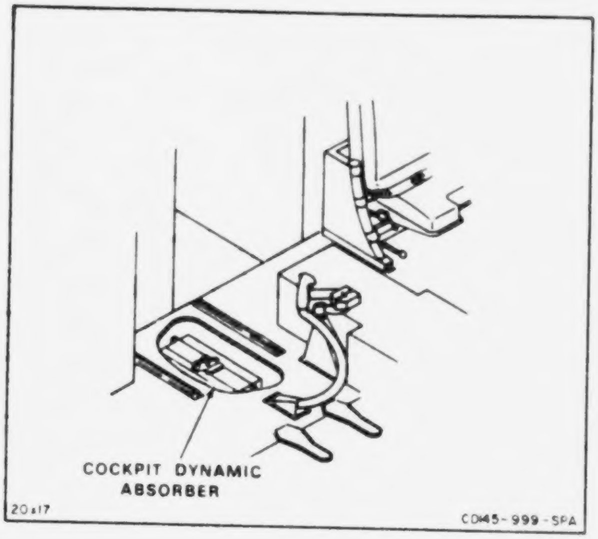
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Hoist, Minimum 300 Pound Capacity
Handling Adapter
Lifting Shackle
Transportation Trailer
Wire Rope Ring (E18)

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

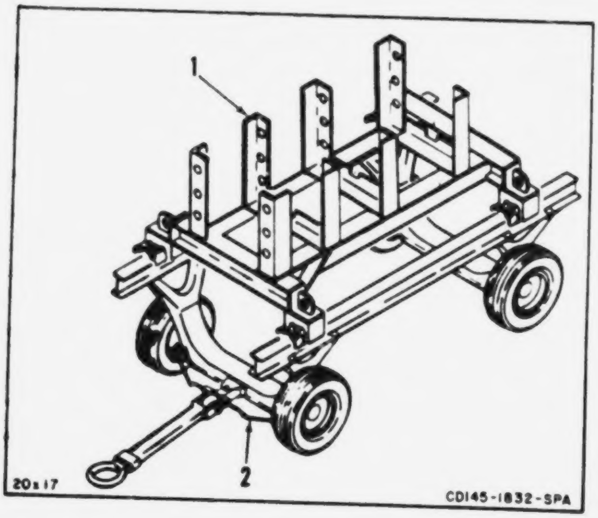
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Jettisonable Door Removed (Task 2-86)
Seat Removed (Task 2-111)
Cockpit Floor Access Cover Removed (Task 2-79)



NOTE

Procedure is the same for either cockpit dynamic absorber. Pilot's side dynamic absorber is shown here.

1. **Install handling adapter (1) on transportation trailer (2).**



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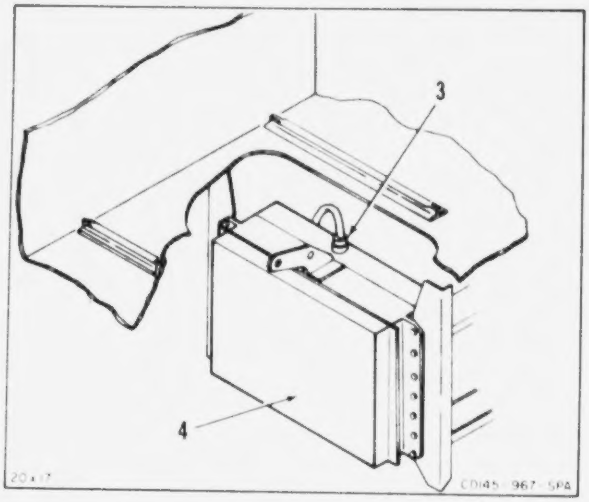
2-145 REMOVE COCKPIT DYNAMIC ABSORBER (Continued) 2-145

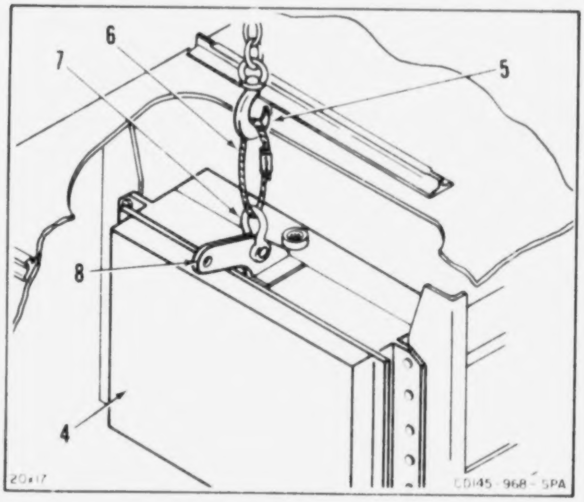
2. **Unplug electrical connector (3) from absorber (4).**


3
4
20x17
CD145-967-SPA

3. Attach hoist hook (5), wire rope ring (E18) (6), and shackle (7) to rear hole in bracket (8).

WARNING

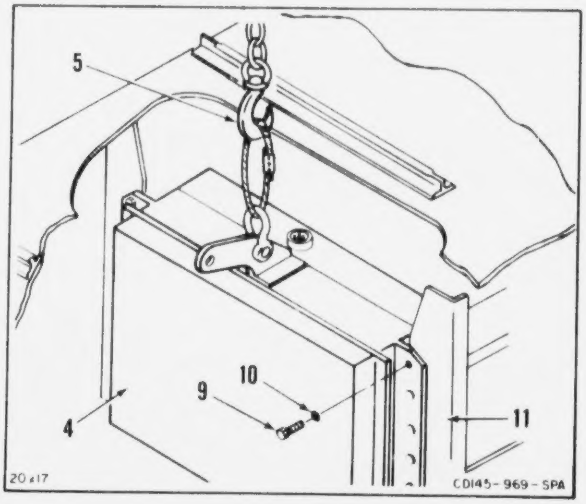
Take up slack from hoist. Otherwise, absorber may drop and injure personnel when attaching hardware is removed.


6
7
5
8
4
20x17
CD145-968-SPA

WARNING

Absorber is heavy and can injure personnel if it drops. Absorber must be supported by hoist before hardware is removed.

4. **Make sure weight of absorber (4) is supported by hoist hook (5).**
5. **Remove 14 bolts (9) and washers (10)** from absorber (4) and structure (11).


5
10
9
11
4
20x17
CD145-969-SPA

GO TO NEXT PAGE

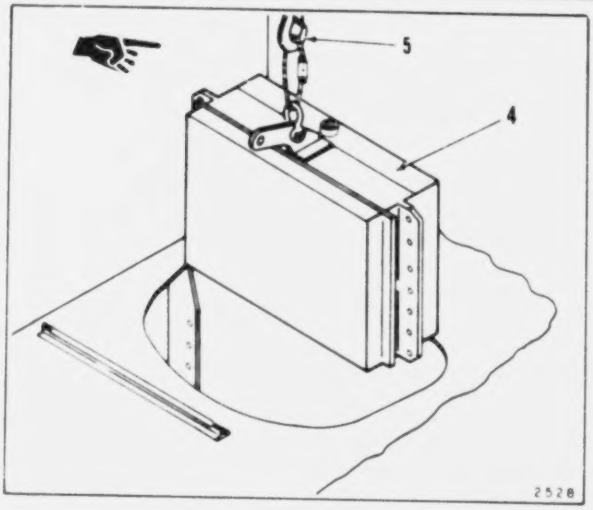
2-145 REMOVE COCKPIT DYNAMIC ABSORBER (Continued) 2-145

CAUTION

Structural, electrical, and hydraulic parts can be damaged if hit by absorber. Absorber must be guided carefully out of absorber compartment and cockpit.

6 With aid of helper. **lift out absorber (4) from compartment,** using hoist (5) Have helper guide absorber

7 **Move absorber (4) out of cockpit,** using hoist (5) With aid of helper guide absorber from outside helicopter

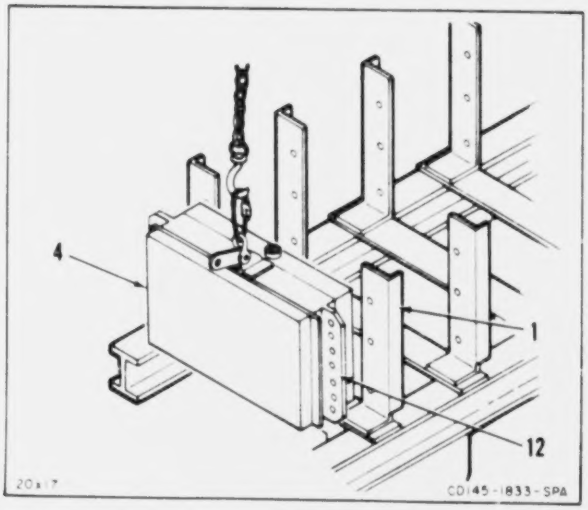


CAUTION

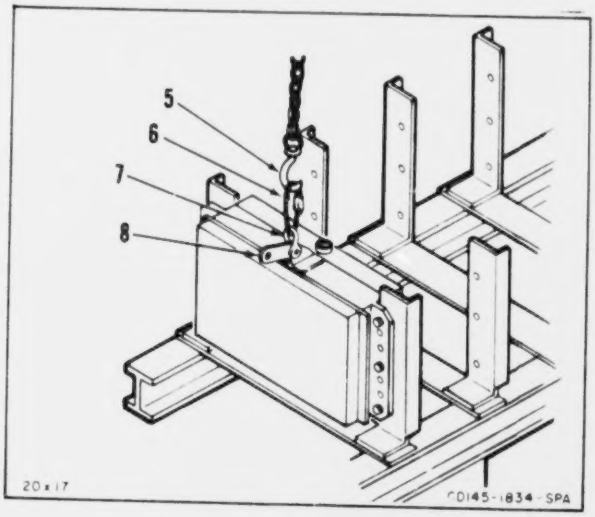
Absorber cover cannot support weight of absorber. Absorber must be set down so weight is supported by mounting flanges.

8 **Lower absorber (4) on handling adapter (T140) (1).** With aid of helper guide absorber Position absorber with mounting flanges (12) resting on loading adapter (T140) (1)

9 **Secure absorber (4) to handling adapter (T140) (1).**



10 **Remove hoist hook (5) wire rope ring (6) and shackle (7) from bracket (8).**

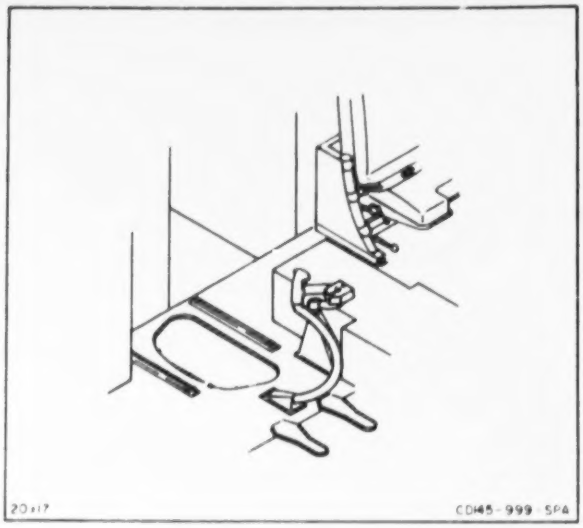


FOLLOW-ON MAINTENANCE

None

END OF TASK

2-146 INSTALL COCKPIT DYNAMIC ABSORBER 2-146



INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Hoist, Minimum 300 Pound Capacity
Handling Adapter
Lifting Shackle
Test Harness (T112)
Transportation Trailer
Wire Rope Ring (E18)

Materials:

None

Personnel Required:

Medium Helicopter Repairer (2)
Inspector

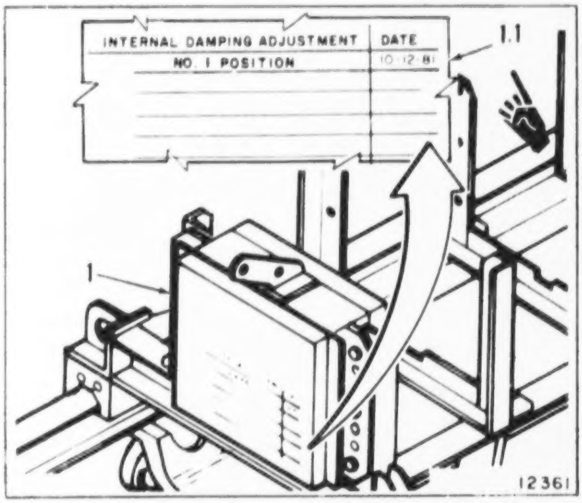
References:

TM 55-1520-240-23P
TM 55-1520-240-T

NOTE

- Procedure is the same for either cockpit dynamic absorber. Pilot's side dynamic absorber is shown here.
- Internal damping adjustment position of absorber is stenciled on absorber cover.

1 Select an absorber (1) with internal damping adjustment set to No. 1 position, as indicated by stencil (1.1). If an absorber with correct adjustment is not available, proceed as follows:



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NOTE

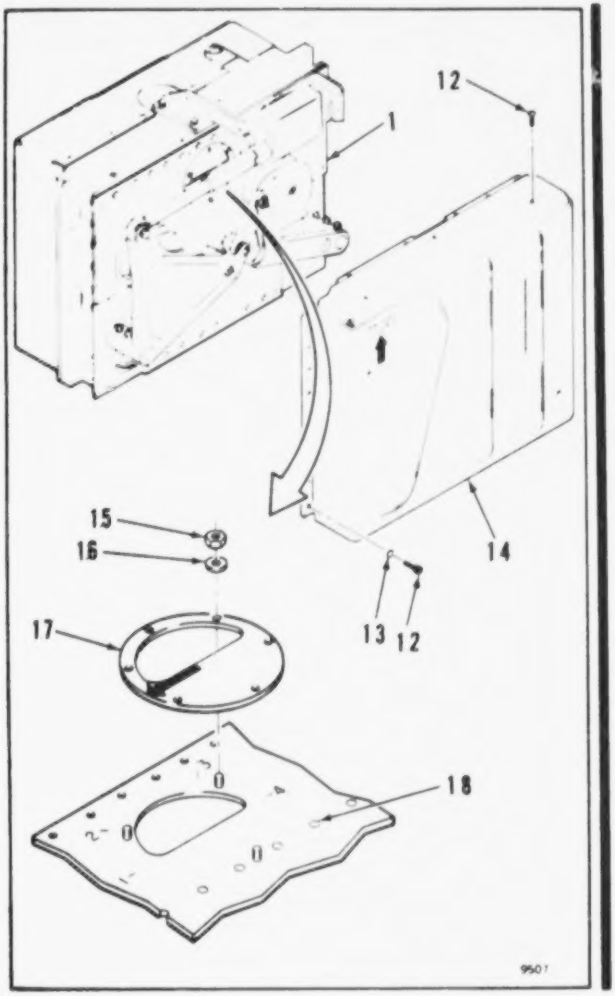
The three screws at top of dust cover have no washers.

a **Remove screws (1.2)** and washers (1.3) from dust cover (1.4). **Remove dust cover** from absorber (1). Retain screws.

b **Remove three nuts (1.5)** and washers (1.6) from air damper cover plate (1.7). Change cover plate on studs (1.8) from position No. 3 to position No. 1. Secure plate with nuts and washers.

c Position dust cover (1.4) on frame of absorber (1). Install washers (1.3) and screws (1.2).

d Stencil dust cover (1.4) for internal damping position No. 1.



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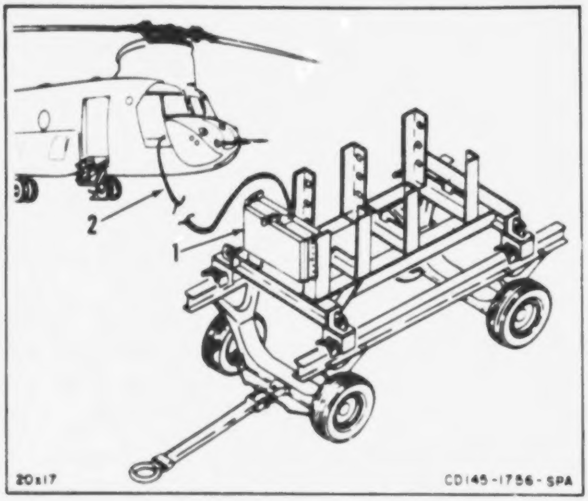
2-146 INSTALL COCKPIT DYNAMIC ABSORBER (Continued) 2-146

2. **Connect test harness (T112) (2)** to absorber (1) and helicopter.

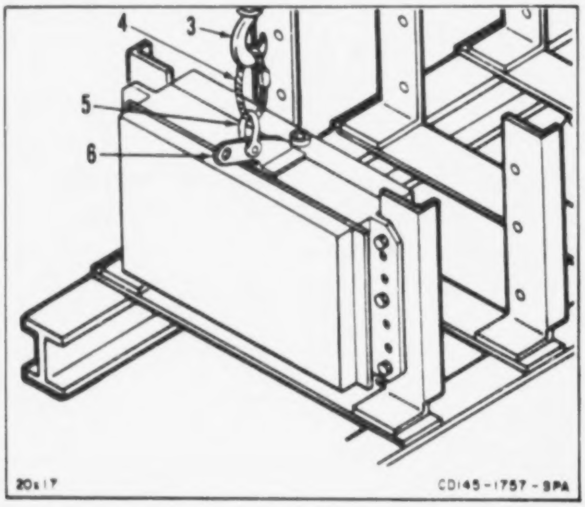
CAUTION

Do not apply power to absorber until test harness is connected. Damage to cards within absorber can occur.

3. **Perform operational check of dynamic absorber (TM 55-1520-240-T).** If absorber (1) is good, go to step 4. If absorber is not good, do the following:
   a. Shut down electrical power.
   b. Disconnect test harness (T112) (2).
   c. Turn in absorber (1), get another one. Go to step 2.
4. **Disconnect test harness (T112) (2).**



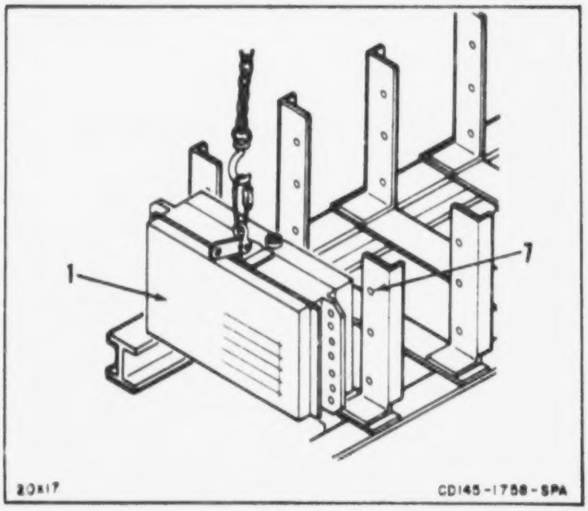
5. Attach hoist hook (3), wire rope ring (E18) (4), and shackle (5) to rear hole in bracket (6).



WARNING

Absorber is heavy and can injure personnel if it drops. Absorber must be moved slowly and carefully. It must be supported by hoist until all hardware is installed to prevent injury to personnel.

6. Release absorber (1) from handling adapter (7).
7. **Lift absorber (1) from handling adapter (7)** using hoist. With aid of helper guide absorber.



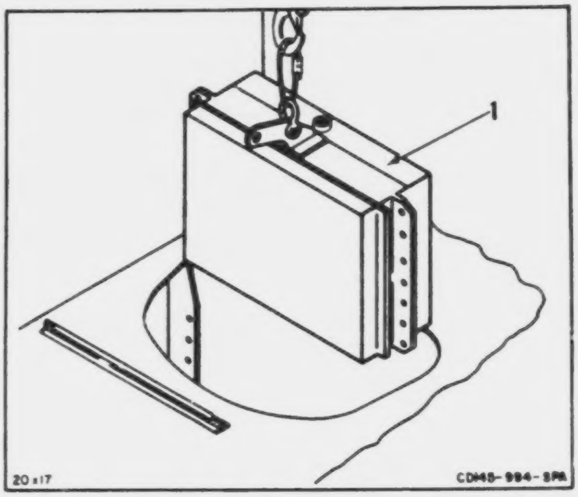
GO TO NEXT PAGE

2-146 INSTALL COCKPIT DYNAMIC ABSORBER (Continued) 2-146

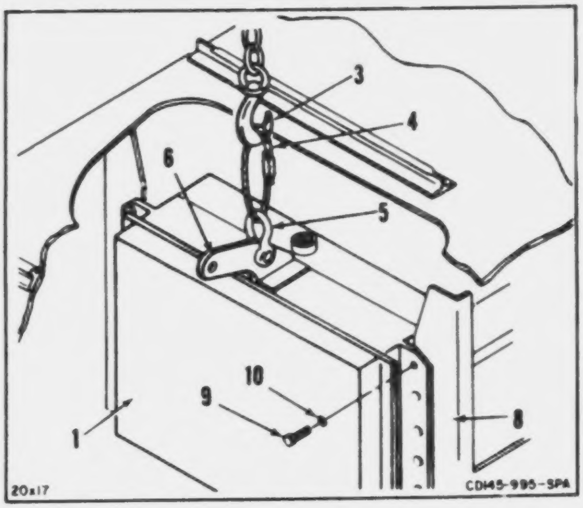
CAUTION

Structural, electrical, and hydraulic parts can be damaged if hit by absorber. Absorber must be guided carefully into cockpit and absorber compartment.

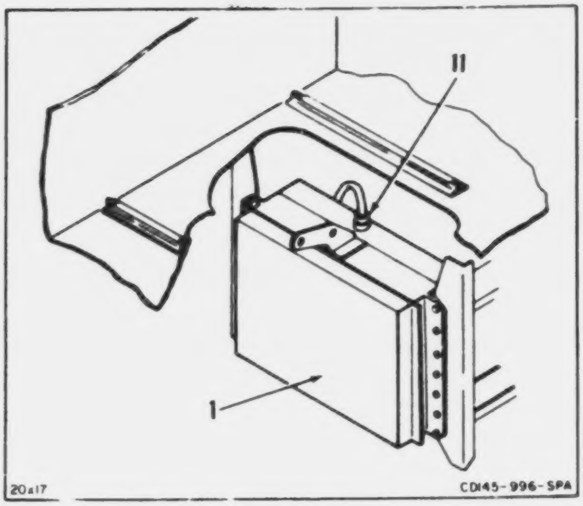
8. Inspect installation area of absorber (1). **Move absorber (1) into cockpit,** using hoist. With aid of helper guide absorber.
9. **Lower absorber (1) into compartment,** using hoist. With aid of helper guide absorber.



10. **Align bolt holes in absorber (1)** and structure (8).
11. **Install 14 bolts (9) and washers (10)** through absorber (1) and structure (8).
12. Remove hoist hook (3), wire rope ring (4), and shackle (5) from bracket (6).



13. **Plug in electrical connector (11) to absorber (1).**



GO TO NEXT PAGE

2-146 INSTALL COCKPIT DYNAMIC ABSORBER (Continued) 2-146

14. **Remove handling adapter (7) from transportation trailer (12).**

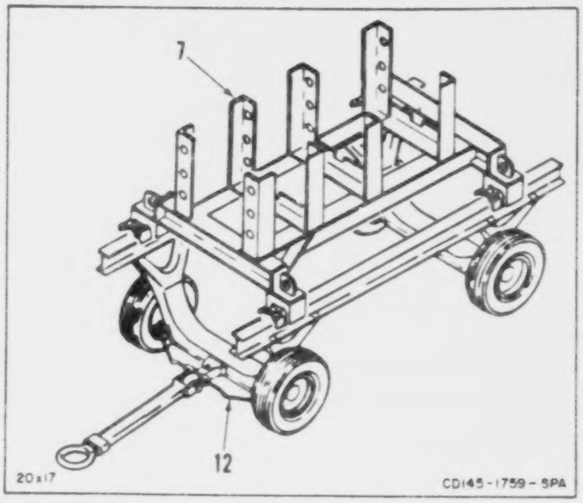
INSPECT

FOLLOW-ON MAINTENANCE:

Install cockpit floor access cover (Task 2-80).

Install seat (Task 2-114).

Install jettisonable door (Task 2-89).



END OF TASK

2-147 REMOVE DYNAMIC ABSORBER TEST BOX 2-147

INITIAL SETUP

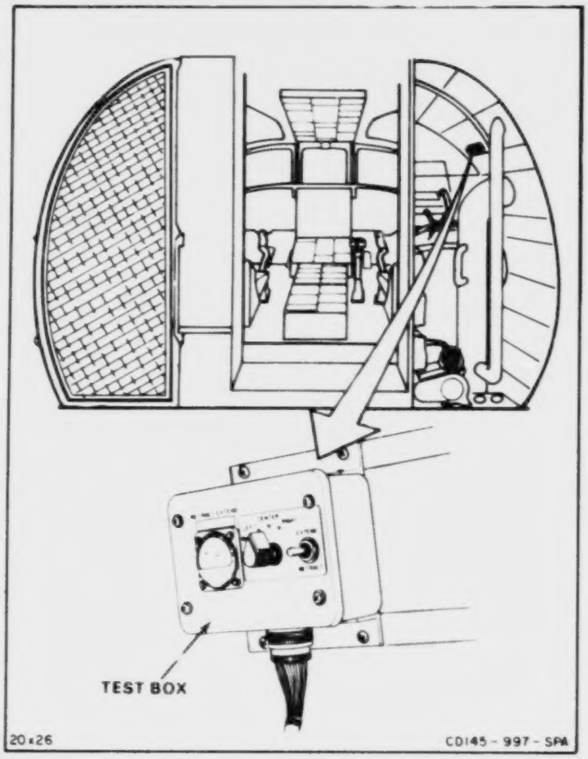
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

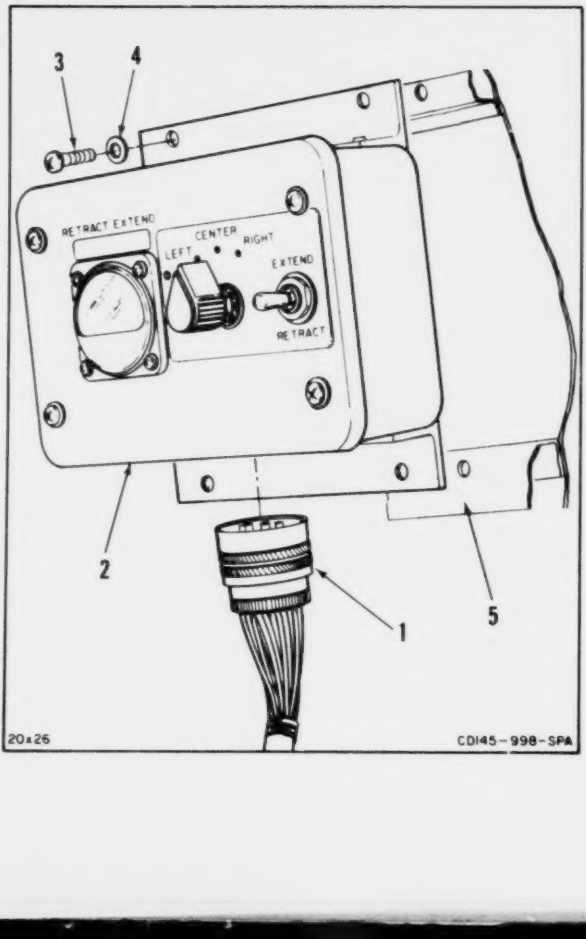
Equipment Condition:
Electrical Power Off
Battery Disconnected (Task 1-39)
Hydraulic Power Off
Heater Compartment Acoustic Blanket Removed (Task 2-208)


TEST BOX
20x26
CD145-997-SPA

1. Turn electrical connector (1) 1/4-turn counterclockwise.
2. **Unplug electrical connector (1)** from bottom of test box (2).
3. Hold test box (2) in place.
4. **Remove four screws (3) and washers (4)** from test box (2).
5. **Remove test box (2)** from structure (5).

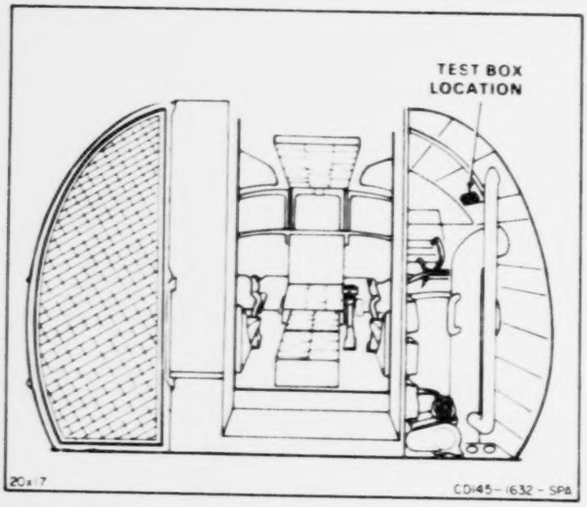
FOLLOW-ON MAINTENANCE:

None


3
4
RETRACT EXTEND
CENTER
LEFT
RIGHT
EXTEND
RETRACT
2
1
5
20x26
CD145-998-SPA

END OF TASK

2-148 INSTALL DYNAMIC ABSORBER TEST BOX 2-148


TEST BOX
LOCATION
20x17
CD145-1632-SPA

INITIAL SETUP

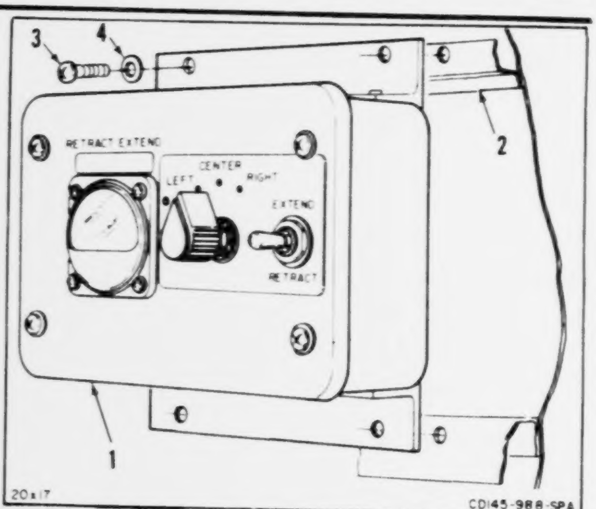
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

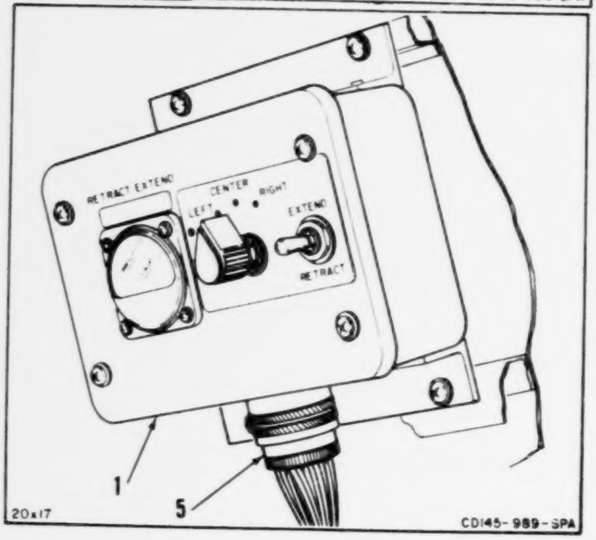
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P


3
4
2
1
RETRACT EXTEND
CENTER
LEFT
RIGHT
EXTEND
RETRACT
20x17
CD145-988-SPA

1. **Position test box (1)** on structure (2).
2. Align holes in test box (1) and structure (2).
3. **Install four screws (3) and washers (4)** through test box (1) flange and structure (2).


RETRACT EXTEND
CENTER
LEFT
RIGHT
EXTEND
RETRACT
1
5
20x17
CD145-989-SPA

4. **Connect electrical connector (5)** in bottom of test box (1).

INSPECT

FOLLOW-ON MAINTENANCE:

Test dynamic absorbers (Task TM 55-1520-240-T).

Install cabin acoustic blankets (Task 2-210).

END OF TASK

2-149 REMOVE LOWER CABIN DOOR 2-149

INITIAL SETUP

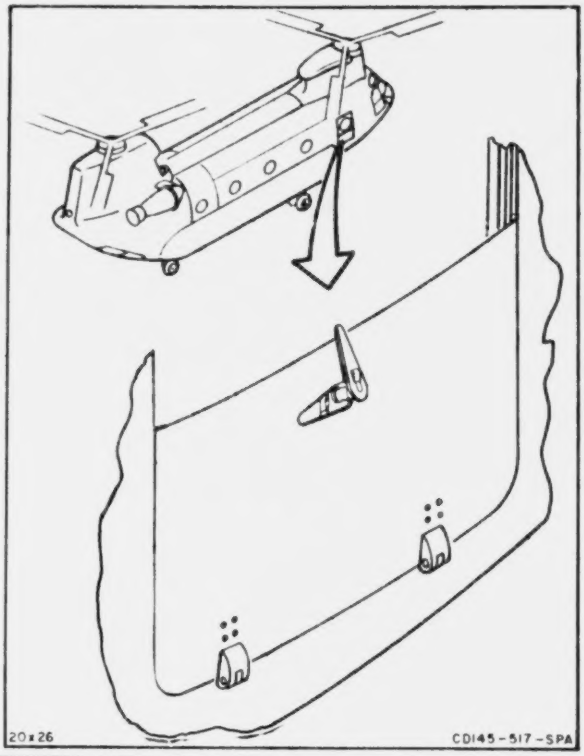
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

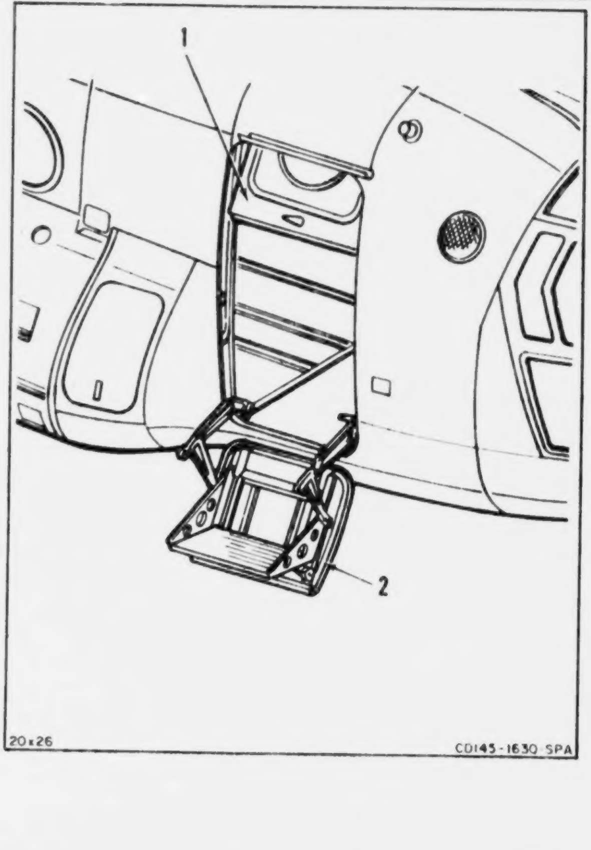
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



1. **Open and latch upper cabin door (1).**
2. **Open lower** cabin **door (2).**
3. Have helper support door (2) in open position.



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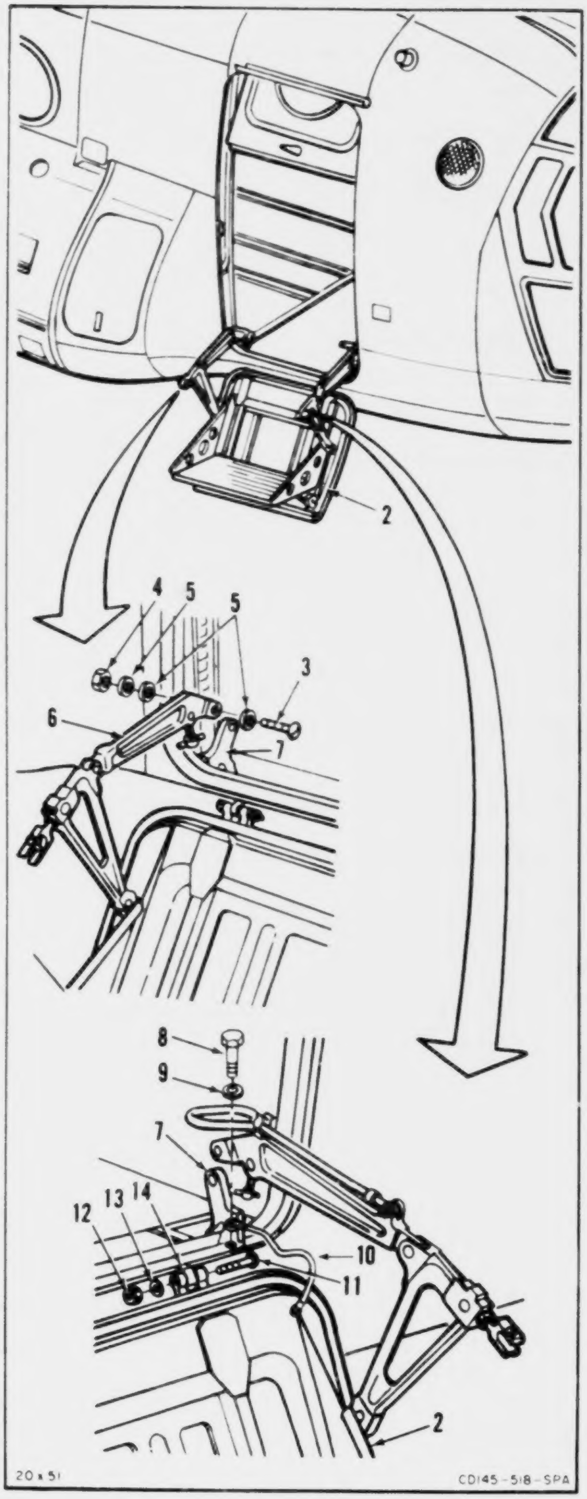
2-149 REMOVE LOWER CABIN DOOR (Continued) 2-149


2
4
5
5
3
6
7
8
9
7
12
13
14
10
11
2
20 x 51
CD145-518-SPA

4. **Remove bolt (3),** nut (4), and three washers (5) from both door hinge fittings (6) and fuselage fittings (7).

5. **Remove bolt (8), washer (9), and bonding wire (10).**

6. **Remove bolt (11),** nut (12), and two washers (13) from both hinges (14). **Remove** lower **door (2).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-150 REMOVE UPPER CABIN DOOR 2-150

INITIAL SETUP

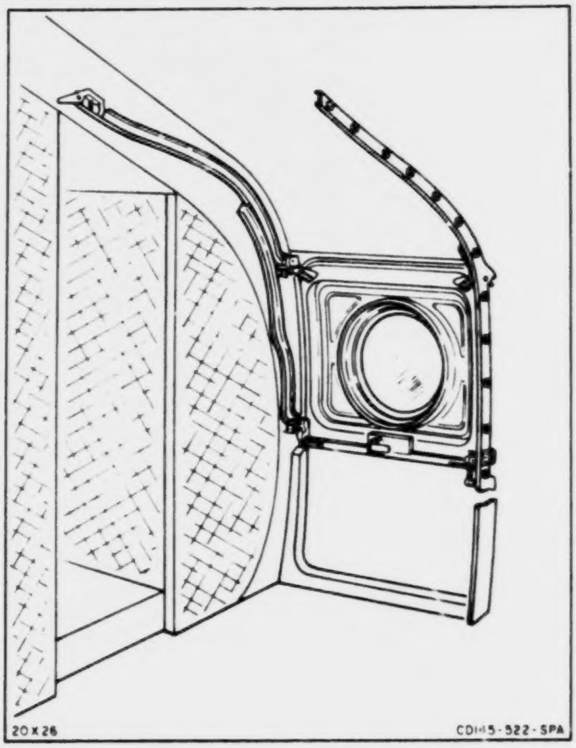
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

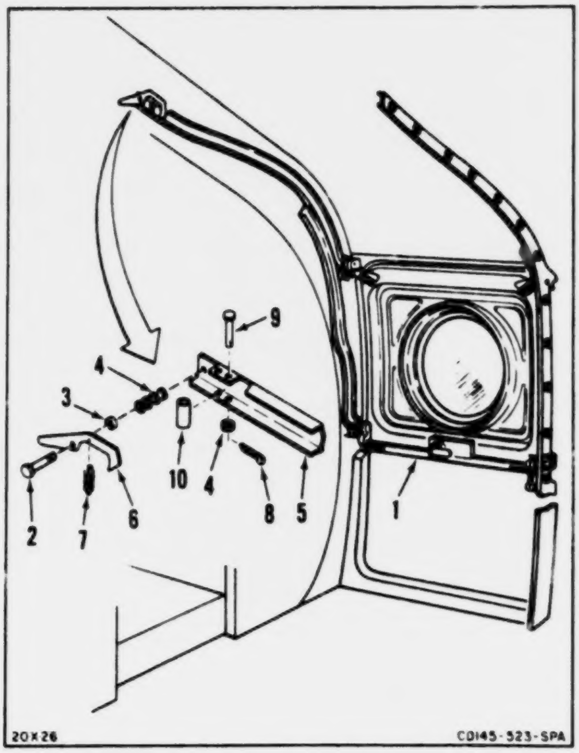
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



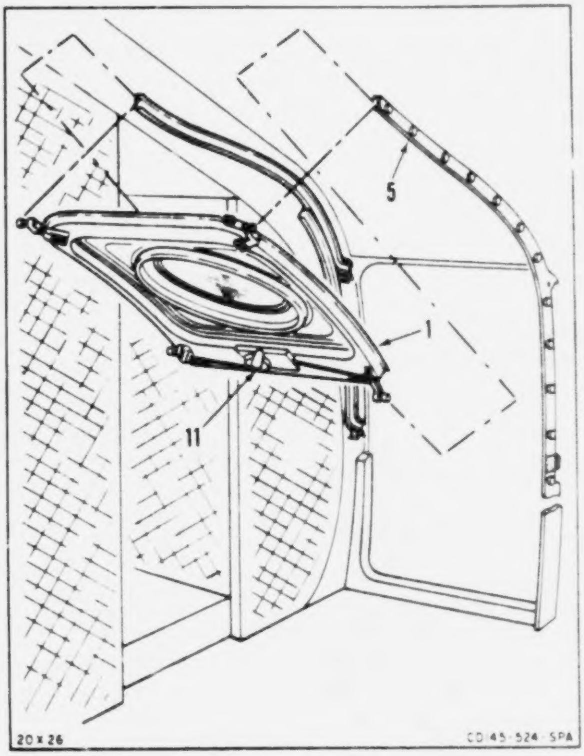
1. Make sure upper door (1) is closed.
2. **Remove bolt (2),** bushing (3) and four washers (4) on upper forward track (5).
3. **Remove latch (6) and spring (7).**
4. **Remove cotter pin (8),** from flathead pin (9). Remove pin, washer (4), and rubber spacer (10) from track (5).



GO TO NEXT PAGE

2-150 REMOVE UPPER CABIN DOOR (Continued) 2-150

5. Unlatch lower handle (11). With aid of helper, **slide door (1) up and off track (5).**


5
1
11
20 x 26
CD 45-524-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-151 MINOR REPAIR CABIN DOOR 2-151

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-10

Equipment Condition:
As Required

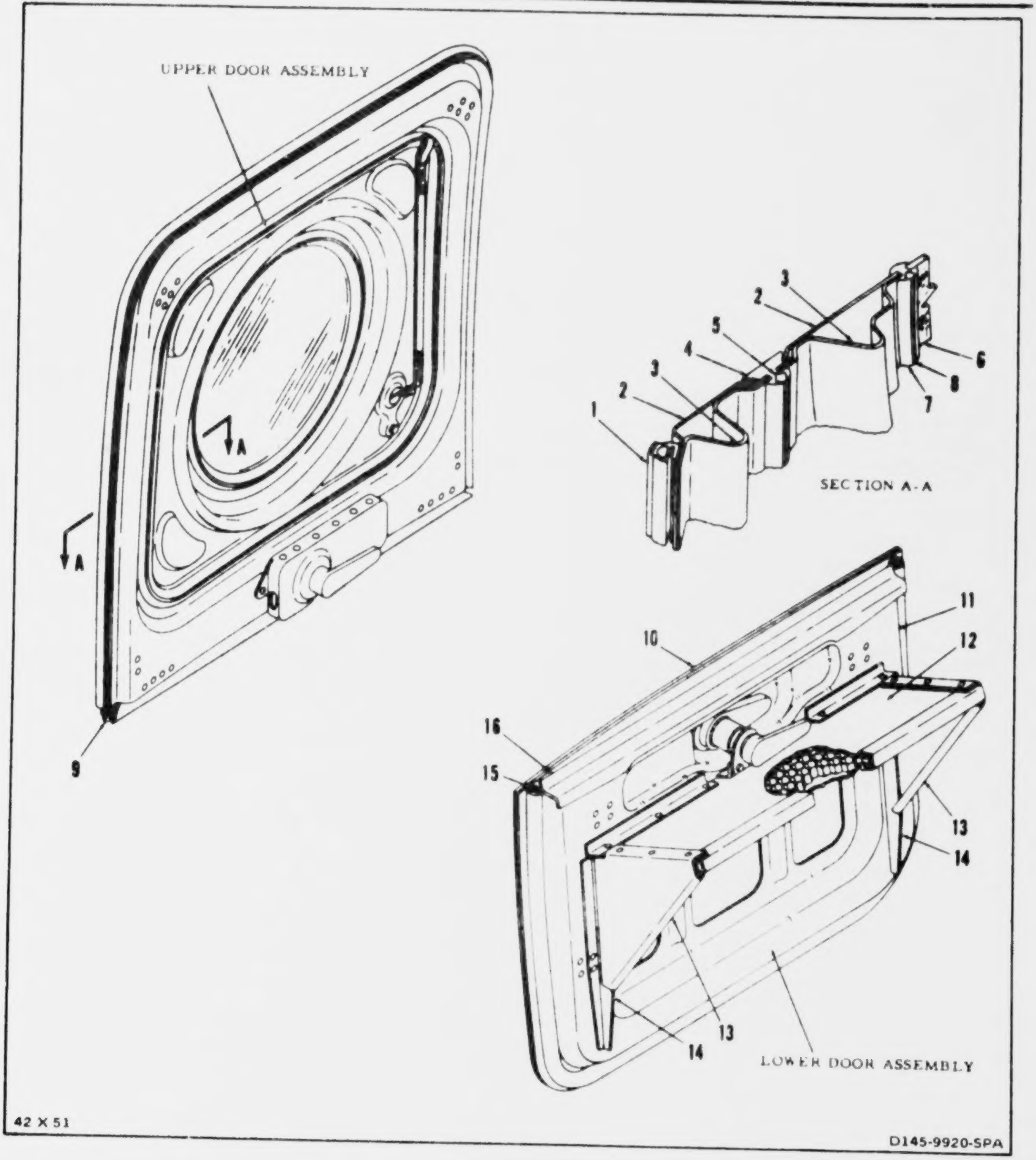
General Safety Instructions:
As Required

---

1. Burnish nicks, scratches, and dents if the burnished area does not interfere with door operation.
2. Temporarily patch holes and stop-drilled cracks. Do not exceed limits in Task 2-10.
3. Refer to TM 55-1500-204-25/1 for repair of window.
4. Repair damage more than minor by patching if door edges are not affected.

GO TO NEXT PAGE

2-151 MINOR REPAIR CABIN DOOR (Continued) 2-151


UPPER DOOR ASSEMBLY
A
A
9
3
2
5
4
3
2
1
6
8
7
SECTION A-A
11
10
12
16
15
13
14
13
14
LOWER DOOR ASSEMBLY
42 X 51
D145-9920-SPA

GO TO NEXT PAGE

2-151 MINOR REPAIR CABIN DOOR (Continued) 2-151

UPPER DOOR

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	SEAL	NOTE B	—
2	OUTER SKIN	0 032 2024-T4 CLAD	0 040 2024-T3 CLAD
3	INNER PAN	0 032 2024-T4 CLAD	0 040 2024-T3 CLAD
4	SEAL	NOTE C	—
5	SEAL FILLER	NOTE D	—
6	PANE	NOTE E	—
7	SEAL	NOTE F	—
8	SEAL FILLER	NOTE G	—
9	SEAL	NOTE H	—

LOWER DOOR

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
10	OUTER SKIN	0 020 2024-T4 CLAD	0 025 2024-T3 CLAD
11	INNER SKIN	0 032 2024-T4 CLAD	0 040 2024-T3 CLAD
12	STEP	NOTE I	—
13	GUSSET	0 040 2024-T4 CLAD	0 050 2024-T3 CLAD
14	ANGLE	ALCOA 22509 7075-T6	—
15	SEAL	NOTE J	—
16	ZEE	0 050 2024-T4 CLAD	0 063 2024-T3 CLAD

NOTES:

A All dimensions are in inches

B Replace with new seal 114S1621-9

C Replace with new seal 114S1621-5

D Replace with new seal filler 114S1621-7

E The window pane is made of 0 080-thick acrylic sheet, MIL-P-25690

F Replace with new seal 114S2901-16

G Replace with new seal filler 114S2901-15

H Replace with new seal 114S1621-11

I The step assembly is a sandwich honeycomb structure The top skin is 0 032 2024-T4 CLAD aluminum alloy The core is 0 540, 4 3-1/4-20NP-3003 aluminum honeycomb The bottom skin is 0 016 7075-T6 CLAD aluminum alloy
Refer to TM 55-1500-204-25/1 for information on repair of sandwich honeycomb structures

J Replace with new seal 114S1620-43

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-152 REPAIR CABIN DOOR (AVIM) 2-152

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
5/8 Inch Thick Marine Quality Plywood
Enamel (E165)
Walkway Material (E440)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-356
Task 2-350
Task 2-151

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1 For examples of typical repairs to sandwich honeycomb step, inner and outer skins, and spot welding, refer to TM 55-1500-204-25/1 (Task 2-151).

2 Apply walkway material (E440) to upper portion of step if repairs occur in that area (Task 2-356).

3 Repair cracks in gussets or angles at the forward and aft ends of lower cabin door step as follows.

  a Fabricate two angles from AND10134-1204, 2024T3 aluminum extrusion.

  b Remove screws, washers, nuts, and step assembly.

  c Remove rivets from side and bottom of gussets and angles.

  d Position new angles as shown. Use existing rivet holes as pattern and drill the new angles.

  e Remove new angles, deburr rivet holes, and finish angles (Task 2-350).

  f Reinstall angles and rivet them in place. Use rivets MS20426AD4 on bottom and rivets MS20470AD4 on sides.

  g Fabricate a step pad from 5/8 inch thick marine quality plywood. Finish both sides with enamel (E165). Wear gloves (E186).

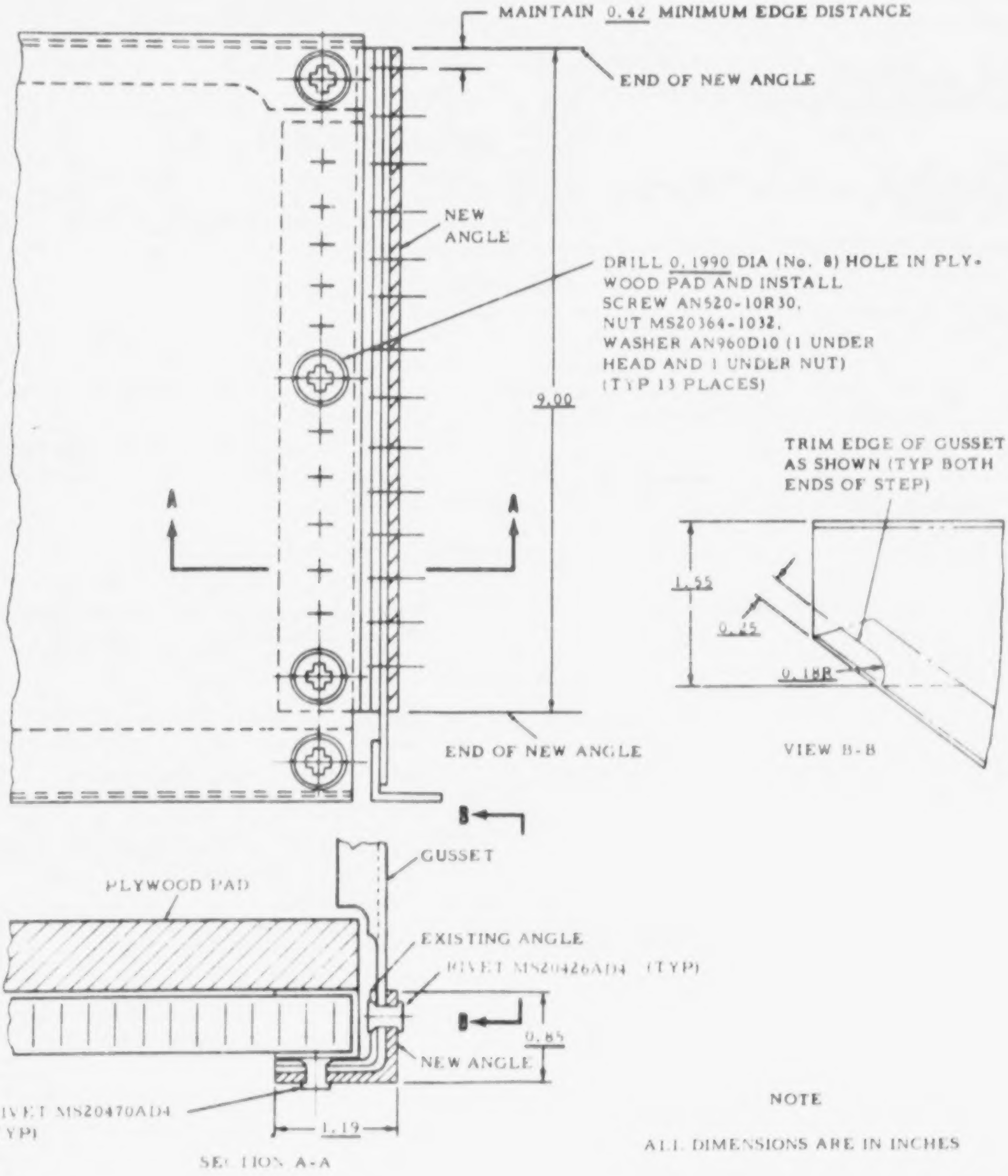
  h After enamel has dried, cover top of step with type II walkway material (E440). (Task 2-356).

  i Trim edge of gussets as shown.

  j Reinstall step assembly and plywood step pad. Use 13 screws, washers, and nuts.

GO TO NEXT PAGE

REPAIR OF LOWER CABIN DOOR STEP


MAINTAIN 0.42 MINIMUM EDGE DISTANCE
END OF NEW ANGLE
NEW ANGLE
DRILL 0.1990 DIA (No. 8) HOLE IN PLYWOOD PAD AND INSTALL SCREW AN520-10R30, NUT MS20364-1032, WASHER AN960D10 (1 UNDER HEAD AND 1 UNDER NUT) (TYP 13 PLACES)
9.00
A
A
END OF NEW ANGLE
TRIM EDGE OF GUSSET AS SHOWN (TYP BOTH ENDS OF STEP)
1.55
0.25
0.18R
VIEW B-B
B
GUSSET
PLYWOOD PAD
EXISTING ANGLE
RIVET MS20426AD4 (TYP)
B
0.85
NEW ANGLE
RIVET MS20470AD4 (TYP)
1.19
SECTION A-A

NOTE

ALL DIMENSIONS ARE IN INCHES

42 X 51

D145-9921-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-153 REMOVE LOWER CABIN DOOR HINGE 2-153

INITIAL SETUP

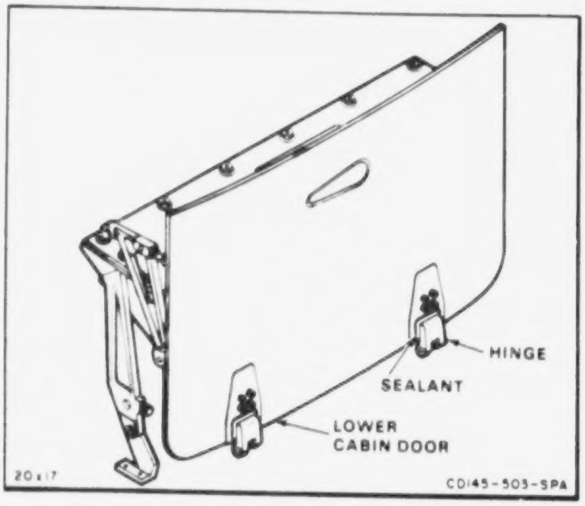
Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer

Equipment Condition:
Lower Cabin Door Removed (Task 2-149)
Off Helicopter Task


HINGE
SEALANT
LOWER CABIN DOOR
20 x 17
CD145-503-SPA

NOTE

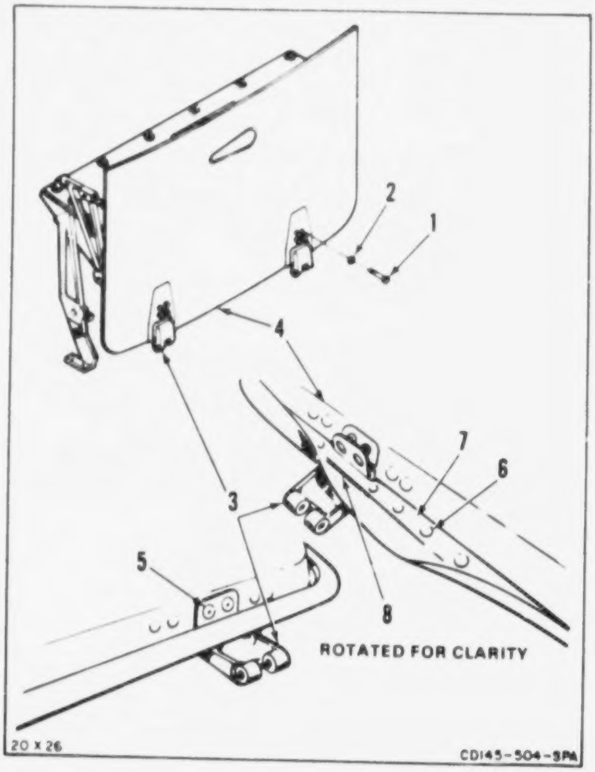
Both hinges are removed same way.

1. **Remove four screws (1)** and washers (2) from hinge (3) and door (4).
2. **Remove two screws (5)** from hinge (3) and door (4).
3. **Remove sealant** around hinge (3).
4. **Remove seven rivets (6)** from retainer strip (7), seal (8), and door (4).
5. **Remove hinge (3).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK


2
1
4
7
6
3
5
8
ROTATED FOR CLARITY
20 X 26
CD145-504-SPA

2-154 INSTALL LOWER CABIN DOOR HINGE 2-154

INITIAL SETUP

Applicable Configurations:
All

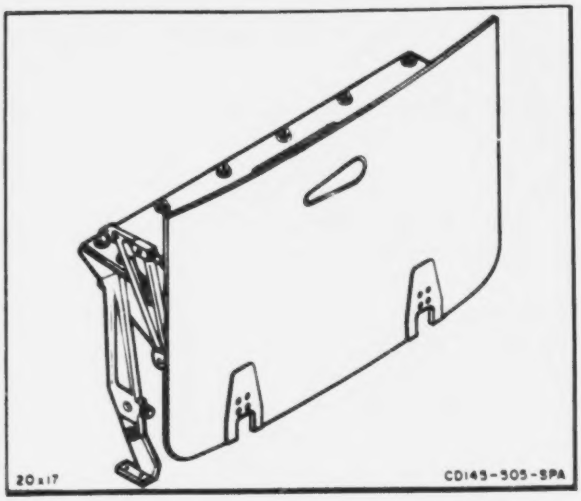
Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
Sealant (E332)
Gloves (E186)

Parts:
Rivets

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

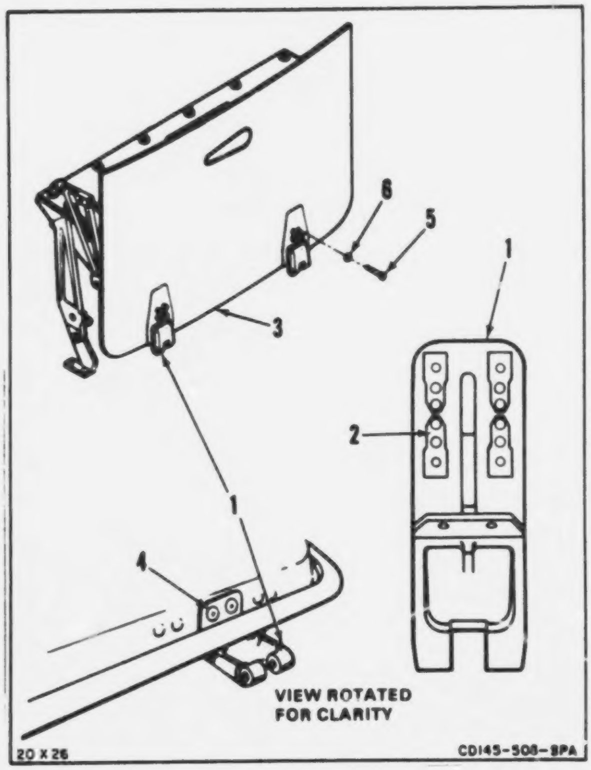
References:
TM 55-1520-240-23P



NOTE

Both hinges are installed same way.

1. Use removed hinge for template and mark six holes in hinge (1). Drill holes.
2. Install nut plate (2) on hinge (1) with eight rivets.
3. **Position hinge (1)** in lower cabin door (3).
4. **Install two screws (4)** loosely in hinge (1).
5. **Install four screws (5) and washers (6) loosely in hinge (1) and door (3). Tighten screws (4 and 5).**



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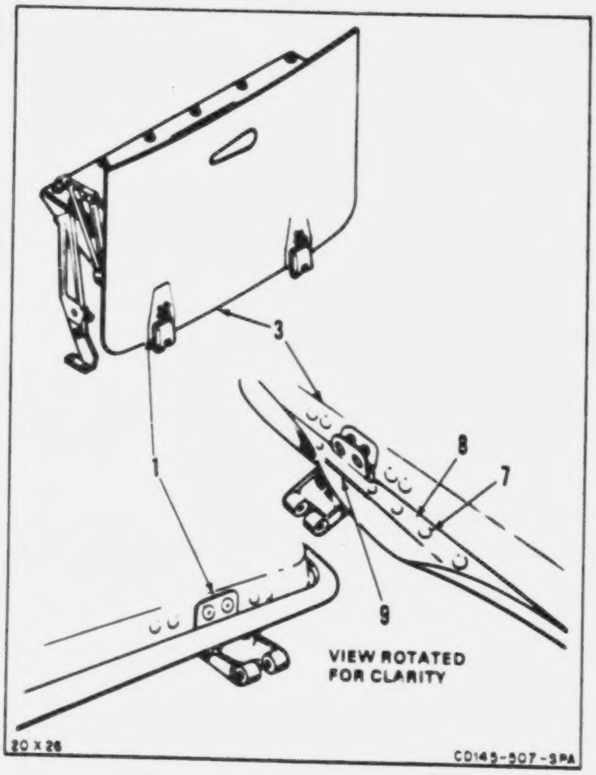
2-154 INSTALL LOWER CABIN DOOR HINGE (Continued) 2-154

6. Install seven rivets (7) in retainer strip (8), seal (9), and door (3).

WARNING

Sealant (E332) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. Get medical attention for eyes.

7. **Seal opening** around edge of hinge (1) with sealant (E332). Wear gloves (E186).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-155 REMOVE UPPER CABIN DOOR TRACK 2-155

INITIAL SETUP

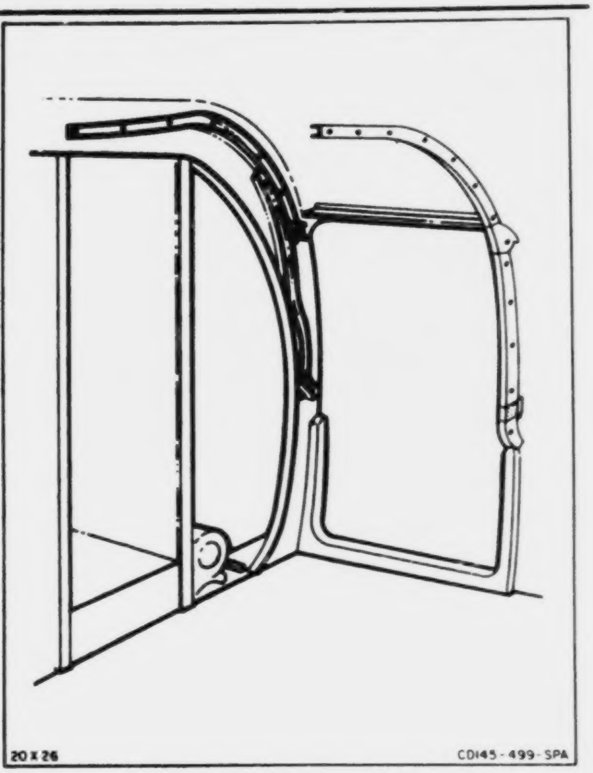
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

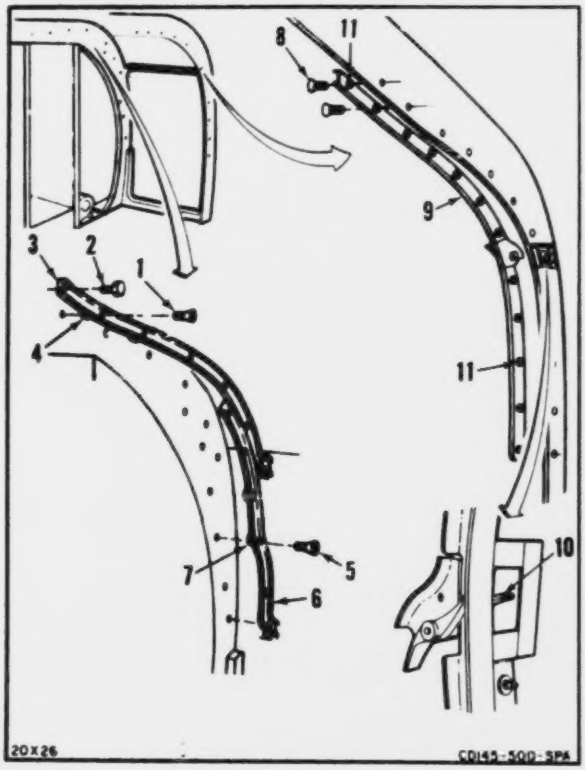
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Upper Cabin Door Removed (Task 2-150)



1. **Remove six screws (1) and bolt (2)** from inside upper forward track (3).
2. **Remove forward upper track (3)** with seven spacers (4).
3. **Remove six screws (5)** from lower forward track (6).
4. **Remove forward lower track (6)** with three spacers (7).
5. **Remove 11 screws (8)** from aft track (9).
6. Push lever (10) up to clear tracks.
7. **Remove aft track (9)** with two spacers (11).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-156 INSTALL UPPER CABIN DOOR TRACKS 2-156

INITIAL SETUP

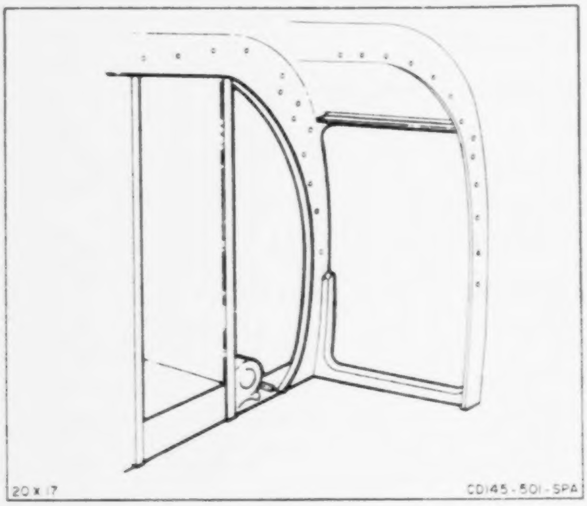
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM 55-1520-240-23P



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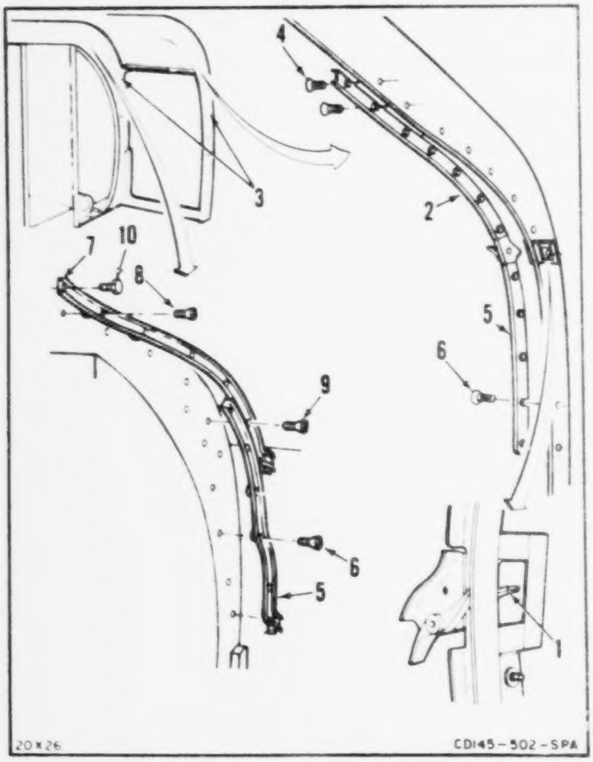
1. Push up and hold lever (1). Position upper track (2). Release lever.
2. Align screw holes in aft track (2) and door frame (3). **Install 11 screws (4).**
3. Align six screw holes in forward lower track (5) and door frame (3). **Install six screws (6).**
4. Align six holes in forward upper track (7) and door frame (3). **Install four screws (8) and two screws (9), and bolt (10).**

INSPECT



FOLLOW-ON MAINTENANCE:

Install upper cabin door (Task 2-158).

END OF TASK

2-157 INSTALL LOWER CABIN DOOR 2-157

INITIAL SETUP

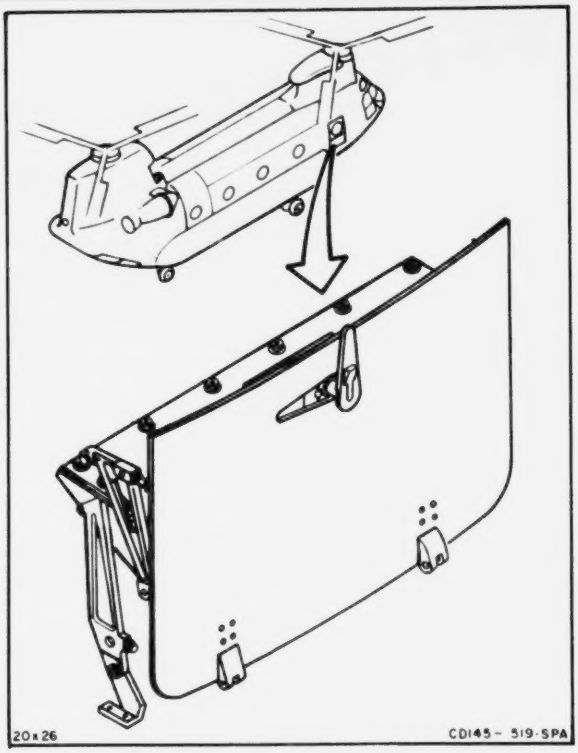
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

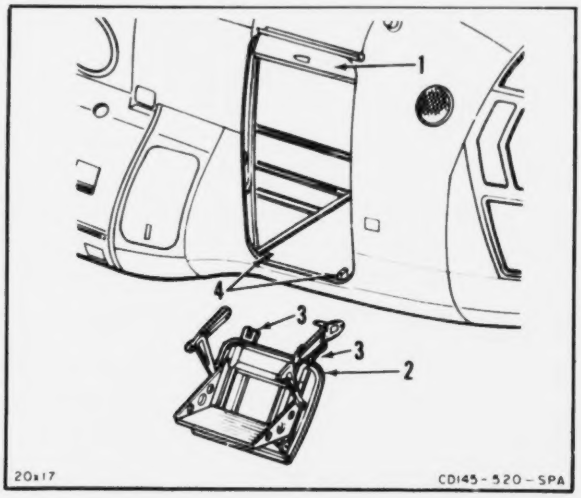
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



1. Make sure upper door (1) is opened and latched.
2. **Position lower door (2)** with aid of helper. Align two door hinges (3) with fuselage fittings (4).



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2-157 INSTALL LOWER CABIN DOOR (Continued) 2-157

3 **Install bolt (5),** washer (6), and nut (7) **in both hinges (3)** and fittings (4)

4 **Put bonding wire (8) and washer (9) on bolt (10). Install bolt.**

5 **Install bolt (11),** three washers (12), and nut (13) in both door hinge fittings (14) and fittings (15)

6 Check that door (2) closes tightly

7 Adjust door lock fitting (16) if needed

8 Check that both stops (17) contact fittings (15) when door (2) is lowered

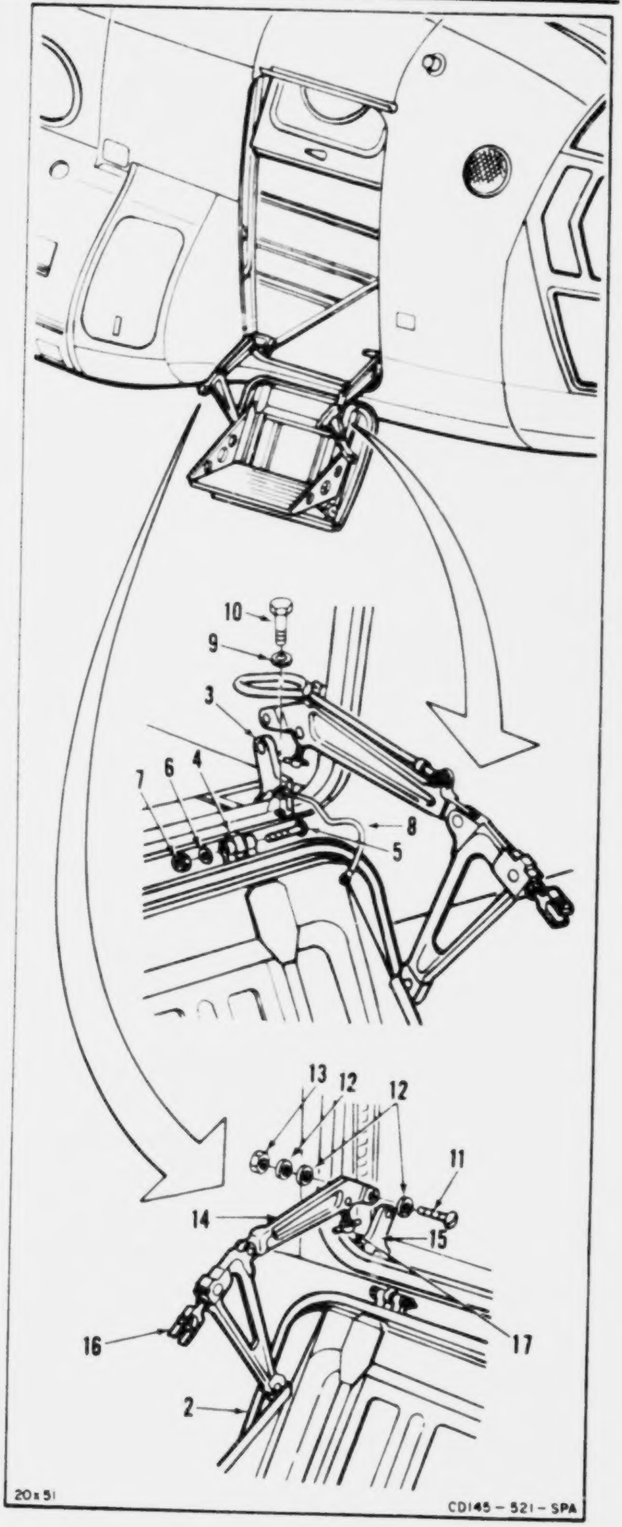
9 Adjust stops (17) if needed

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-158 INSTALL UPPER CABIN DOOR 2-158

INITIAL SETUP

Applicable Configurations:
All

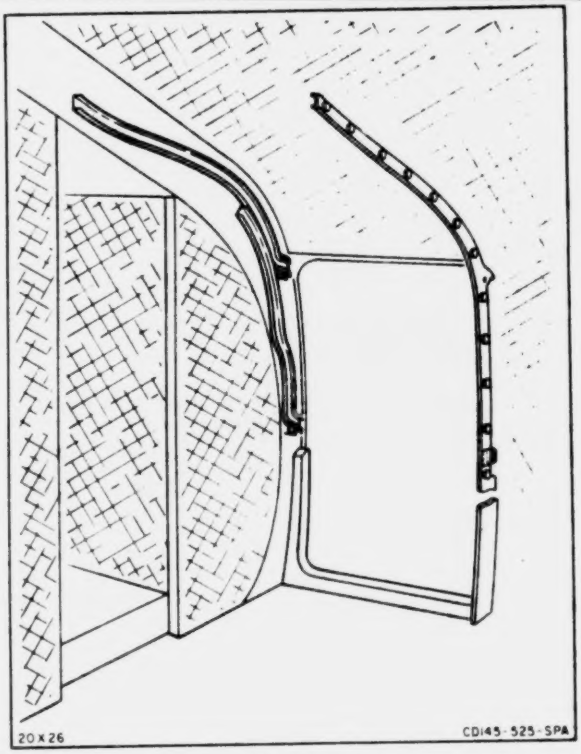
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

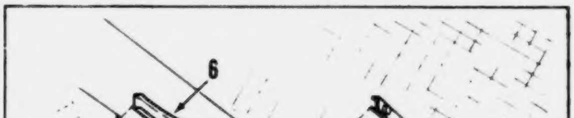
Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
TM 55-1520-240-T



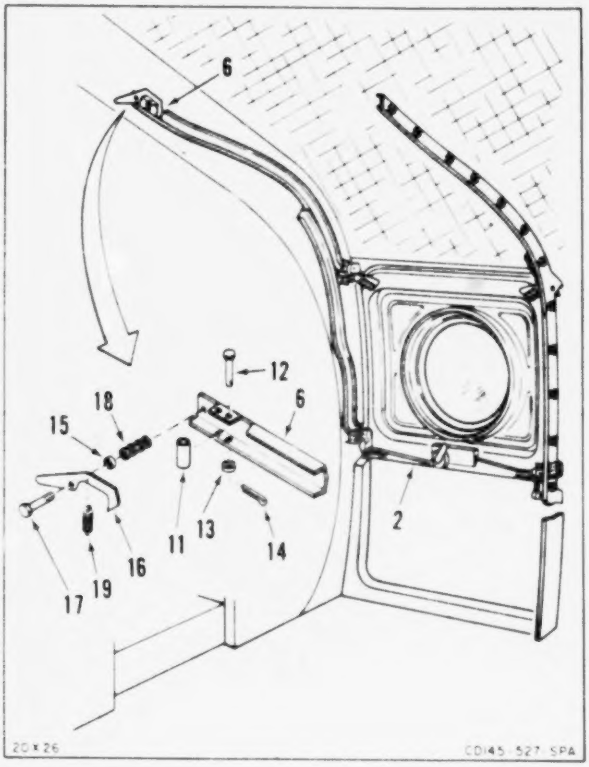
1. **Position aft roller (1)** of door (2) **in upper end of track (3).**
2. Position upper rollers (4) in track (3), and roller (5) in track (6). Have helper hold door in place.
3. Slide door (2) down, letting roller (7) go into track (8).
4. Push up and hold spring operated lever (9). Guide roller (1) past lever.
5. Release lever (9). Make sure guide (10) moves down against track (3) and holds door (2).



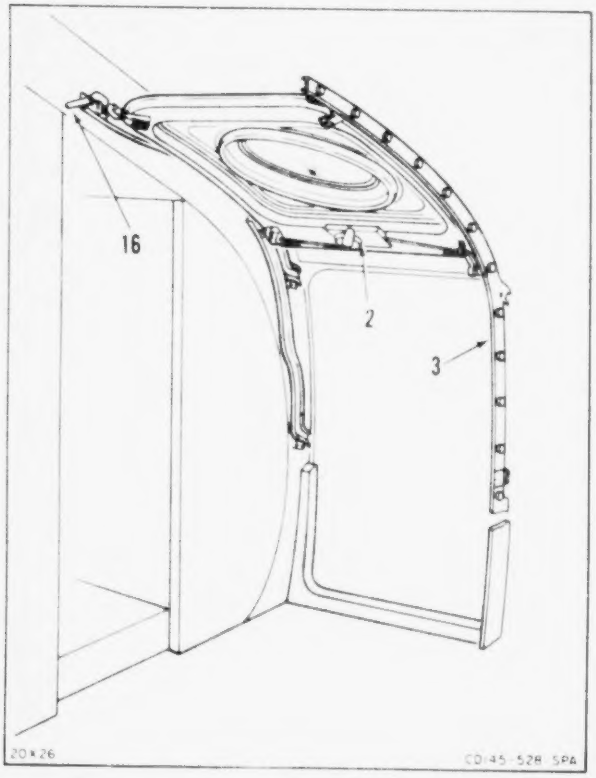
GO TO NEXT PAGE

2-158 INSTALL UPPER CABIN DOOR (Continued) 2-158

6. Close upper cabin door (2). **Position rubber spacer (11) in track (6). Install** flathead **pin (12),** washer (13), and new cotter pin (14).
7. Place bushing (15) in latch (16). Install bolt (17) in bushing. Place four washers (18) on bolt.
8. Hook spring (19) on latch (16) and track (3). Position latch and install bolt (17) in track.



9. **Make sure door (2) seals tight** when closed and latched. If door does not close and latch, adjust.
10. **Make sure door (2) moves freely** on door tracks (3) without binding. If door binds, troubleshoot (TM 55-1520-240-T).
11. **Open upper door (2). Make sure door is held by latch (16) in open position.**



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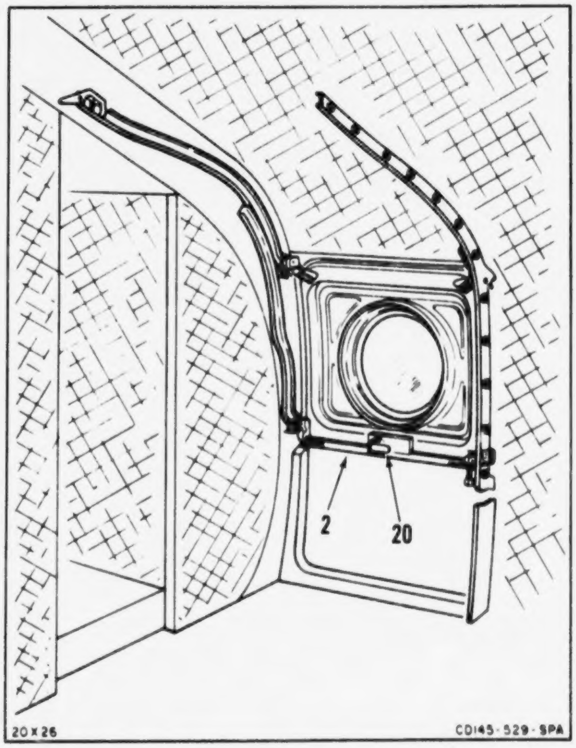
2-158 INSTALL UPPER CABIN DOOR (Continued) 2-158



CAUTION

Do not leave upper door handle extended. If left extended, damage can occur to door and coaming.

12. Close door (2). Turn and push in handle (20) to lock position.

INSPECT

FOLLOW-ON MAINTENANCE:

Adjust upper cabin door (Task 2-159).

END OF TASK

2-159 ADJUST UPPER CABIN DOOR 2-159

INITIAL SETUP

Applicable Configurations:
All

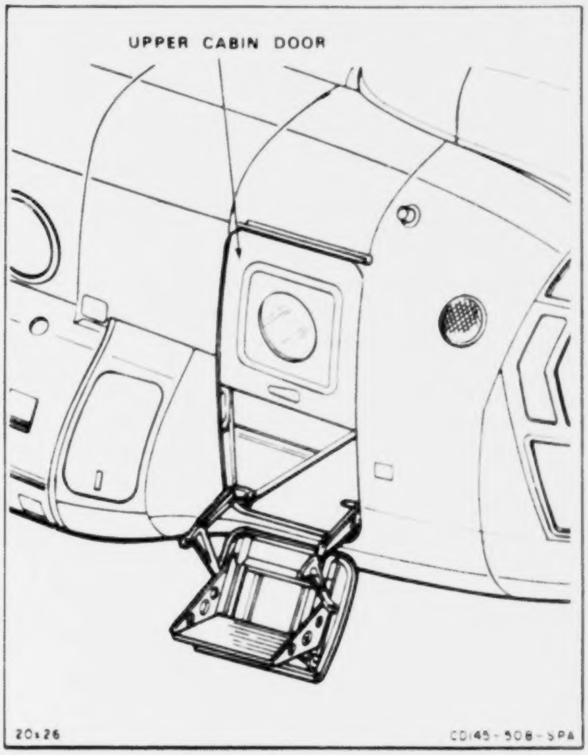
Tools:
Aircraft Mechanics Tool Kit, NSN 5180-00-323-4692

Materials:
Shim Stock, Laminated 114S1621-33
Shim Stock, Laminated 114S1621-35
Shim Stock, Laminated 114S1621-37
Shim Stock, Laminated 114S1621-39

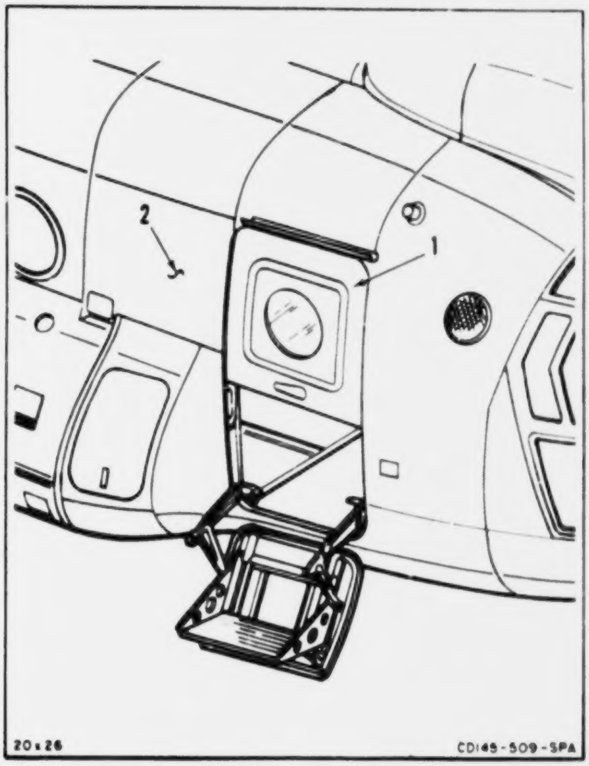
Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



1. Close upper cabin door (1).
2. Check that door (1) fits flush with outside skin of fuselage (2). If it does not, do steps 3 thru 7 for each corner that is not flush.



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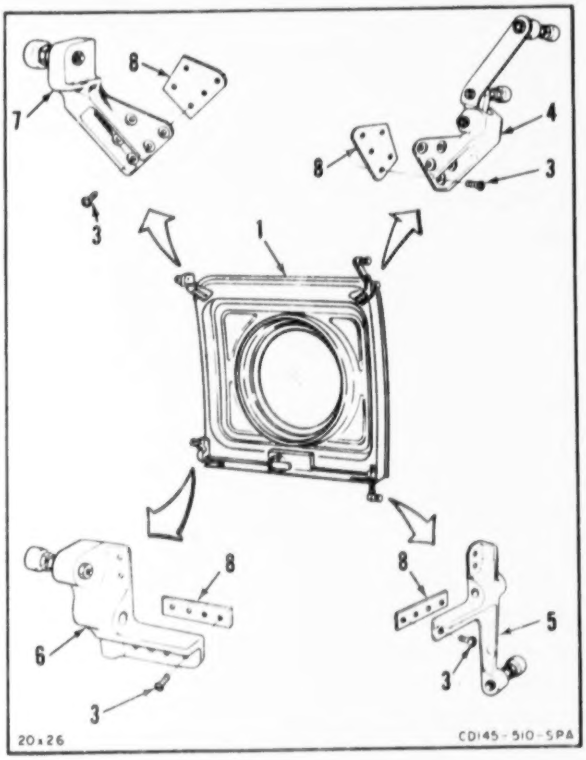
2-159 ADJUST UPPER CABIN DOOR (Continued) 2-159



3. **Remove door (1)** (Task 2-150).

NOTE

Keep same shim with each support throughout task.

4. **Remove screws (3) from supports (4, 5, 6, or 7)** that must be shimmed.
5. Place support (4, 5, 6, or 7) on laminated shim (8). **Trace outline and holes of support onto shim** with scribe,
6. **Trim shim (8)** on outline mark. **Drill 1/4-inch holes** as marked on shim. **Peel shims (8)** to required thickness to make door flush.
7. Hold shims (8) and supports (4, 5, 6 and 7) in place on door (1). **Install screws (3).** Install upper cabin door (1) (Task 2-158).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-160 REMOVE FORWARD CABIN ESCAPE HATCH 2-160

INITIAL SETUP

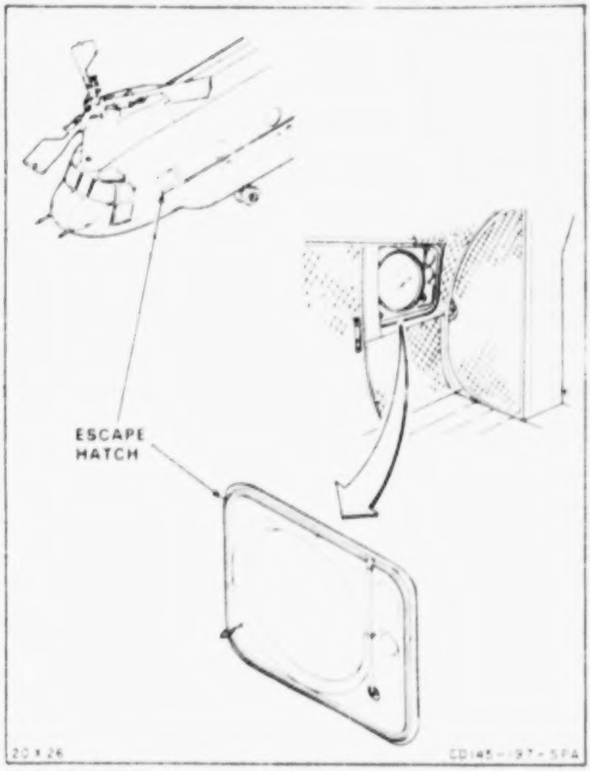
Applicable Configurations:
All

Tools:
Work Stand

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

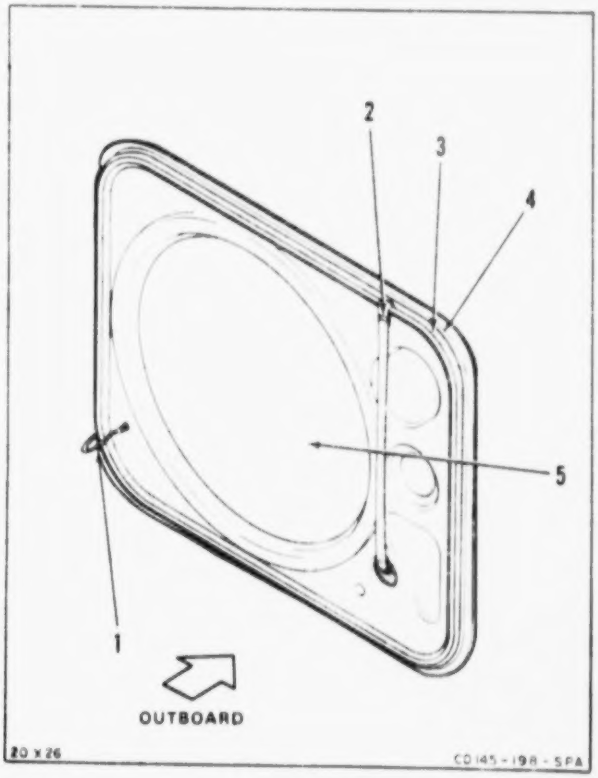
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


ESCAPE HATCH
20 x 26
CD145-197-SFA

1. **Disconnect bonding wire (1).**
2. **Pull release strap (2)** hard enough to remove seal filler (3) from rubber seal and hatch retainer (4). Have helper support hatch (5) outside of helicopter.
3. Push hatch (5) through opening.
4. Have helper lower hatch (5).

FOLLOW-ON MAINTENANCE:

None


2
3
4
5
1
OUTBOARD
20 x 26
CD145-198-SFA

END OF TASK

2-161 REPAIR FORWARD CABIN ESCAPE HATCH 2-161

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-162
Task 2-163
Task 2-164

Equipment Condition:
As Required

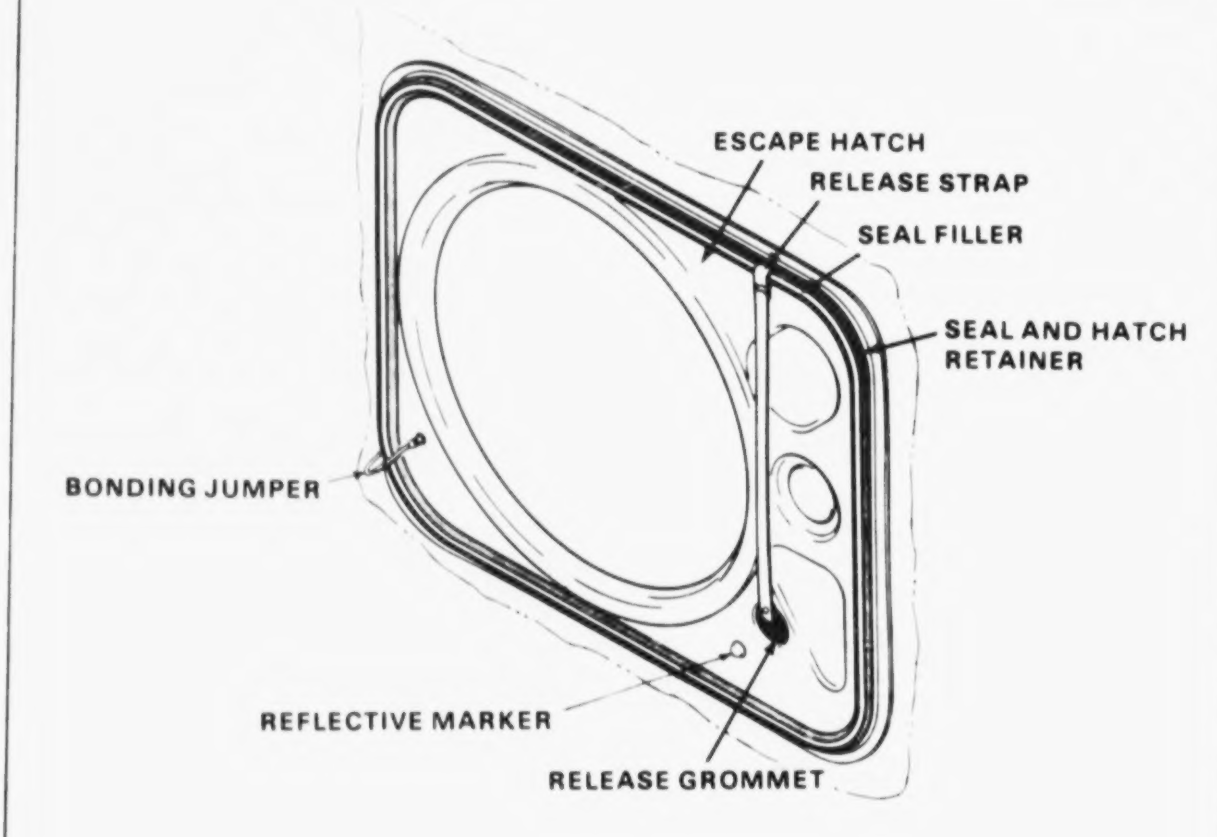
General Safety Instructions:
As Required

1 Two escape hatches are in forward cabin section. One hatch is in upper cabin door. Another is in left side of cabin opposite cabin door. Escape hatch consists of spotwelded assembly, window pane, seals, and seal fillers. Aluminum alloy assembly includes outer skin spotwelded to inner pane and doubler. Window pane is stretched acrylic plastic. Pane is retained in escape hatch by rubber seals and seal fillers. Escape hatch is retained in fuselage structure by rubber seals and seal fillers. Release strap can be pulled from inside or outside of cabin.

2 Damat to escape hatch is classified as Minor Damage (Task 2-162) or Major Damage (Task 2-163).

GO TO NEXT PAGE

2-161 REPAIR FORWARD CABIN ESCAPE HATCH (Continued) 2-161


ESCAPE HATCH
RELEASE STRAP
SEAL FILLER
SEAL AND HATCH RETAINER
BONDING JUMPER
REFLECTIVE MARKER
RELEASE GROMMET
D145-9392-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-162 REPAIR FORWARD CABIN ESCAPE HATCH — MINOR DAMAGE 2-162

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Technical Inspector's Tool Kit, NSN 5180-00-323-5114

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-12
Task 2-15
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair nicks, scratches, and small dents by burnishing.

NOTE

Dents may not interfere with installation of window as escape hatch.

2. Temporarily patch holes and stop-drilled cracks that do not exceed limits (Task 2-12 and 2-15).

3. For information on repair of window pane, refer to TM 55-1500-204-25/1.

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-163 REPAIR FORWARD CABIN ESCAPE HATCH — MAJOR DAMAGE (AVIM) 2-163

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-13
Task 2-160
Task 2-161
Task 2-165
Task 2-352

Equipment Condition:
As Required

General Safety Instructions:
As Required

1 Patch major repairs if edges of escape hatch are not damaged (Task 2-13 and 2-161).

NOTE

Repairs must not interfere with window pane or escape hatch installation.

2 Refinish repaired area (Task 2-352).

3 Replace forward cabin escape hatch when edges of hatch are damaged and installation is affected (Task 2-160 and 2-165).

INSPECT

FOLLOW-ON MAINTENANCE

As required

END OF TASK

Task 2-164 deleted.
Page 2-454 deleted.

2-165 INSTALL FORWARD CABIN ESCAPE HATCHES 2-165

INITIAL SETUP

Applicable Configurations:
All

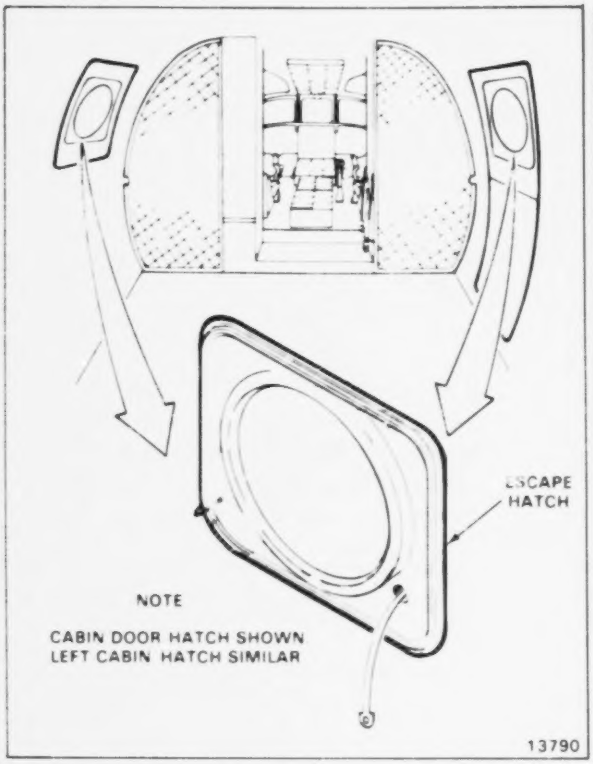
Tools:
Window Tool 756460
Window Tool 756475
Workstand

Materials:
Soap (E353)
Water
Tape (E388)

Parts:
Seals

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

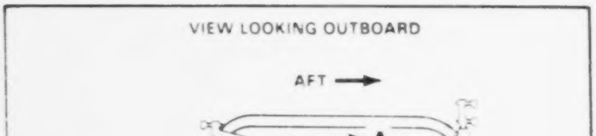
References:
TM 55-1520-240-23P


ESCAPE HATCH
NOTE
CABIN DOOR HATCH SHOWN
LEFT CABIN HATCH SIMILAR
13790

NOTE

Procedure to install hatch in left side of cabin or in cabin upper door is the same.

1. Install closed channel of seal (1) around hatch opening (2). Begin at forward center of opening.
2. Cut seal (1) 1 inch oversize. Hold seal in place around hatch opening with tape (E388) applied at each corner of opening (2). Make final cut and butt splice at start point.
3. Insert bottom end of strap (3) through grommet (4) and fasten to snap fastener (5) on outside of hatch (6).


VIEW LOOKING OUTBOARD
AFT →
A
A
1
START HERE
AT FORWARD
CENTER
2
STRUCTURE
OR
DOOR
OPENING
OUTBOARD
SURFACE
HATCH
SECTION A-A
6
3
4
5
13791

GO TO NEXT PAGE

4. Wet seal opening to receive hatch (1) with a solution of soap (E353) and water. Have helper fit and hold hatch on opening.
5. **From inside helicopter, fit open (inner) channel of seal (2)** around edge of hatch (1). Use installation tool (3) as shown. Remove tape.
6. Make sure seal (2) is tight on hatch opening (1).

WARNING

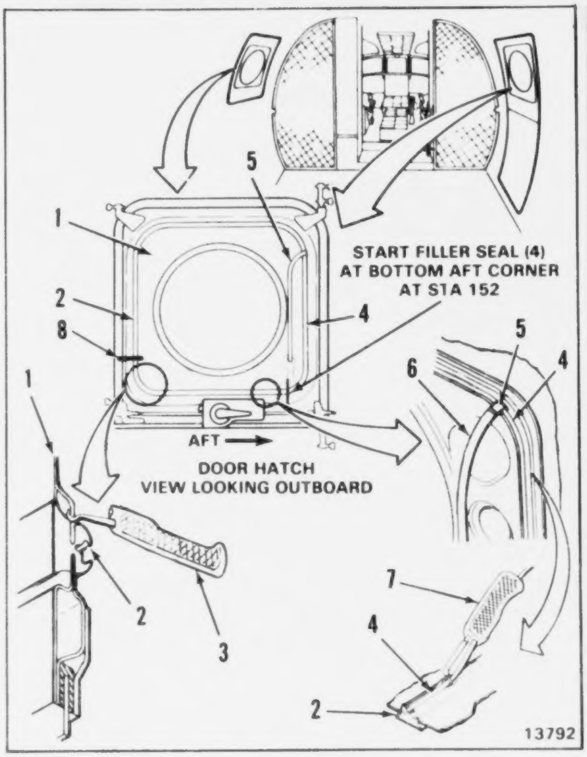
Seal filler must be installed in one piece. If not, filler will not come out when strap is pulled and would not release hatch. Personnel could be trapped.

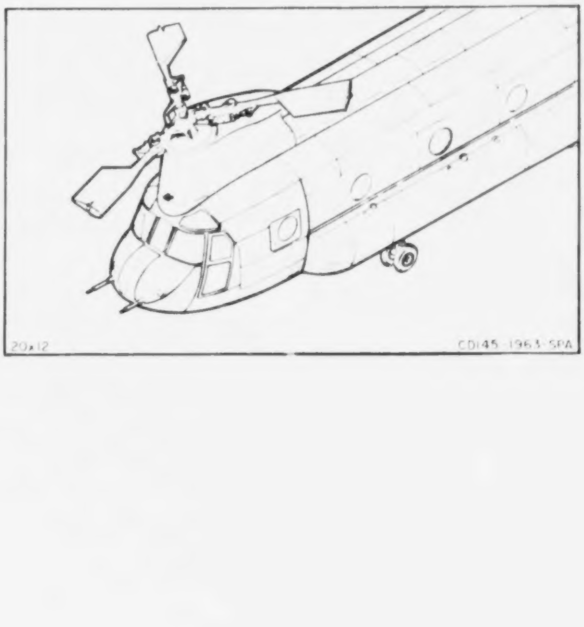
7. Pass filler seal (4) through loop (5) of release strap (6) and through installation tool (7) as shown.
8. **Put filler seal (4) in seal (2).** Start at lower aft corner of hatch (1). Use soap (E353) and water solution to lubricate.
9. Make sure strap (6) is held in filler seal (4) at top of hatch (1)
10. **Connect grounding jumper (8).**

INSPECT

FOLLOW-ON MAINTENANCE:

None


1
5
2
8
4
1
START FILLER SEAL (4)
AT BOTTOM AFT CORNER
AT STA 152
5
6
4
AFT
DOOR HATCH
VIEW LOOKING OUTBOARD
2
3
7
4
2
13792


20x12
CD145-1963-SPA

END OF TASK

2-165.1 REMOVE CABIN WINDOW 2-165.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Workstand

Materials:

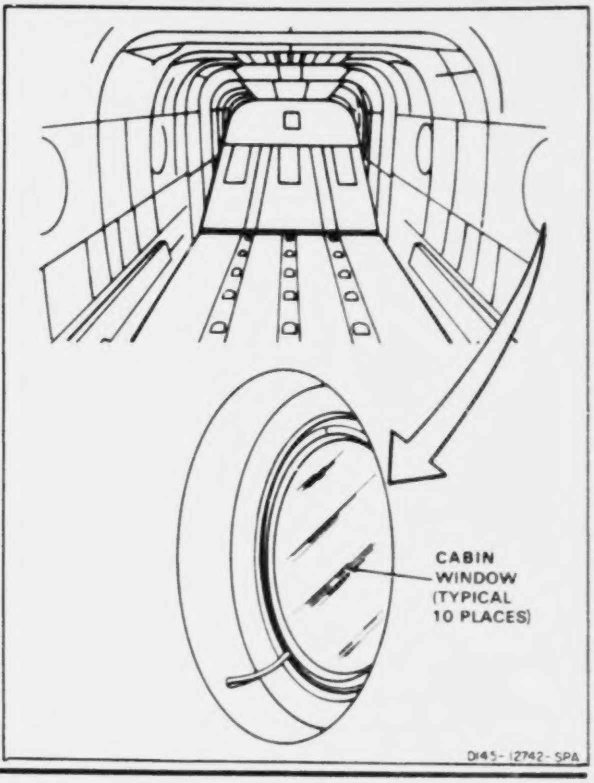
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off



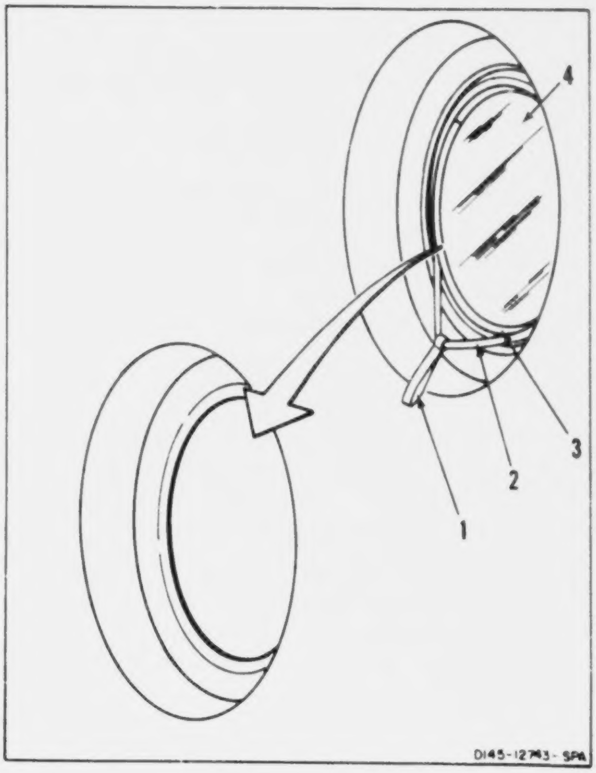
NOTE

Procedure is same to remove any of 10 cabin windows except on certain helicopters the two forward windows do not utilize release strap (1).

1. Pull release strap (1) hard enough to **remove seal filler (2)** from seal and window retainer (3). Have helper support window (4) outside of helicopter.
2. **Push window (4)** through opening to helper.
3. Have helper lower window (4).

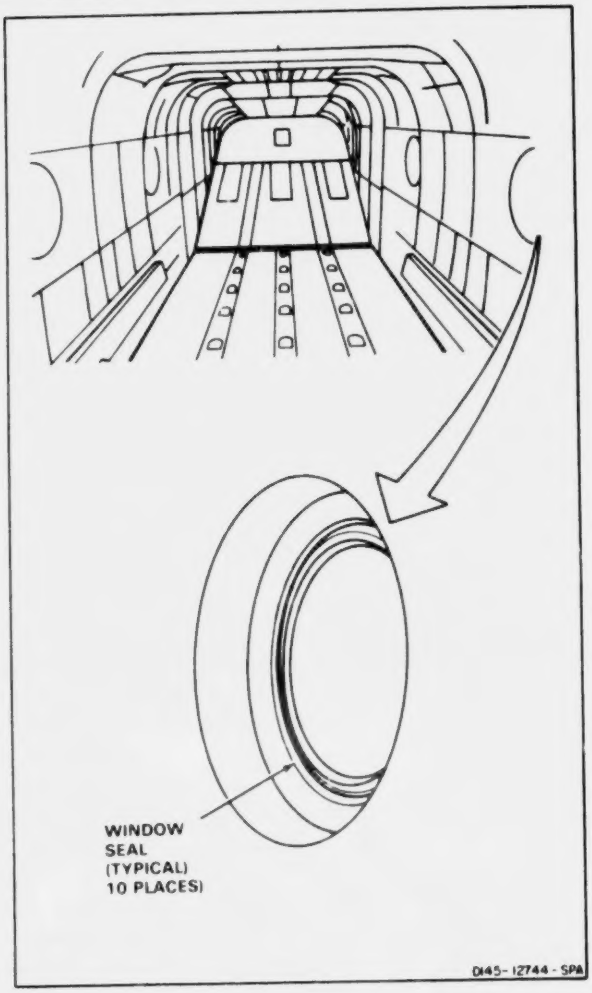
FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-165.2 REPLACE SEAL FOR CABIN WINDOW 114S2721-5



INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
- Cloths (E120)
- Gloves (E186)
- Dry Cleaning Solvent (E162)
- Primer (E299)
- Adhesive (E58)

Parts:
Seal 114S2901-16

Personnel Required:
- Medium Helicopter Repairer
- Inspector

References:
- TM 55-1520-240-23P
- Final Finish — Interior and Exterior Metal Structure (Task 2-352)

Equipment Condition:
- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Cabin Window Removed (Task 2-165.1)

General Safety Instructions:

WARNING

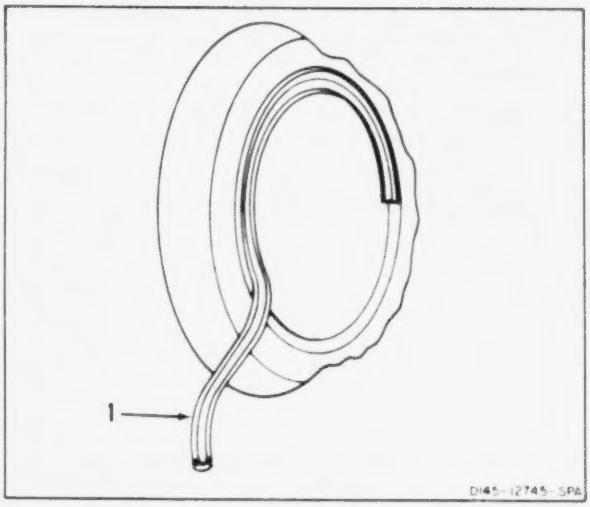
Dry cleaning solvent (E161) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-165.2 REPLACE SEAL FOR CABIN WINDOW 114S2721-5 (Continued) 2-165.2

REMOVE SEAL

1. **Remove seal (1)** from around window opening.
2. **Clean adhesive** from around window opening. **Use cloths (E120) damp with dry cleaning solvent (E162).** Wear gloves (E186) and goggles.
3. **Touch up bare skin areas** (Task 2-352).



INSTALL SEAL

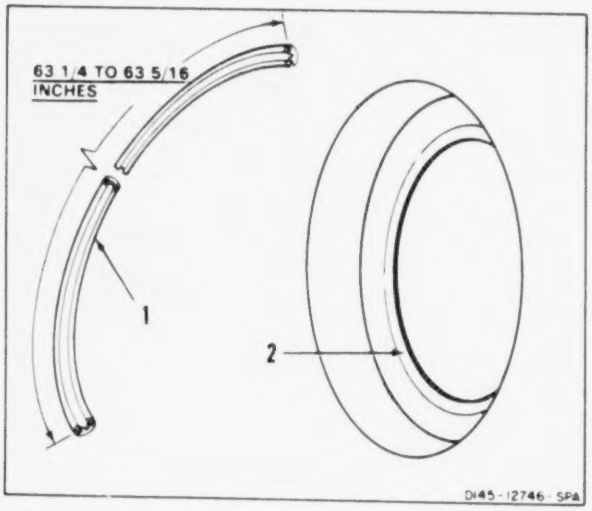
WARNING

Seal 114S2901-16 must be used with window 114S2721-5. If any other seal is used, window could be lost in flight or not release in an emergency. Injury to personnel could result.

4. **Cut new seal (1) 63-1/4 to 63-5/16 inches** long. Make cut at right angle to length of seal. Cut shall be straight and smooth.
5. **Apply light coat of primer (E299) to seal mating surface (2)** of window opening.
6. **Apply light coat of adhesive (E58) to mating surface (2).**

NOTE

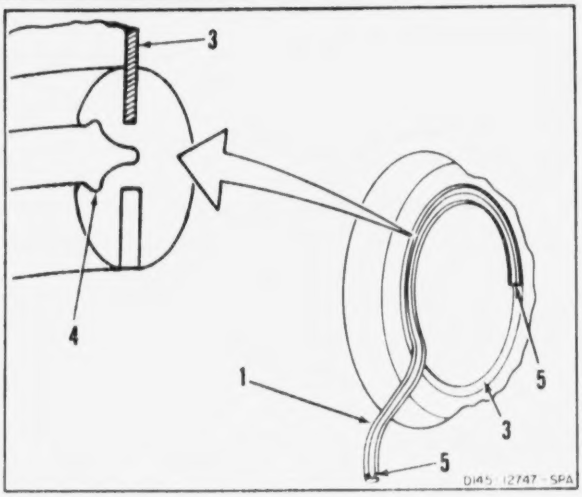
Install seal quickly after applying adhesive to ensure a good bond.



GO TO NEXT PAGE

2-165.2 REPLACE SEAL FOR CABIN WINDOW 114S2721-5 (Continued) 2-165.2

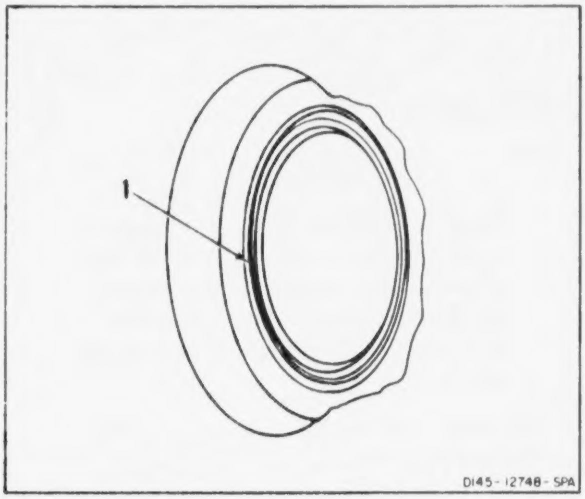
7. **Install** channel of **seal (1)** over edge of window opening (3). **Start at forward center of opening with filler channel (4) facing inboard.** Continue around entire edge.
8. **Apply** a light coat of **adhesive (E58) to free end (5)** of seal (1). **Butt ends of seal together** to finish installation. Apply pressure as needed to make a good bond.



9. **Remove adhesive squeezeout** from seal (1) and structure. Use cloths (E120) damp with solvent (E162).

FOLLOW-ON MAINTENANCE:

Install cabin window (Task 2-165.4).



END OF TASK

2-165.3 REPLACE SEAL FOR CABIN WINDOW 173S2904-3 AND 1560-CH47-944 2-165.3

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Cloths (E120)
Gloves (E186)
Dry Cleaning Solvent (E162)
Primer (E299)
Adhesive (E58)
Alcohol (E64)
Sealant (E332.1)

Parts:
Seal 173S2904-4

Personnel Required:
Medium Helicopter Repairer
Inspector

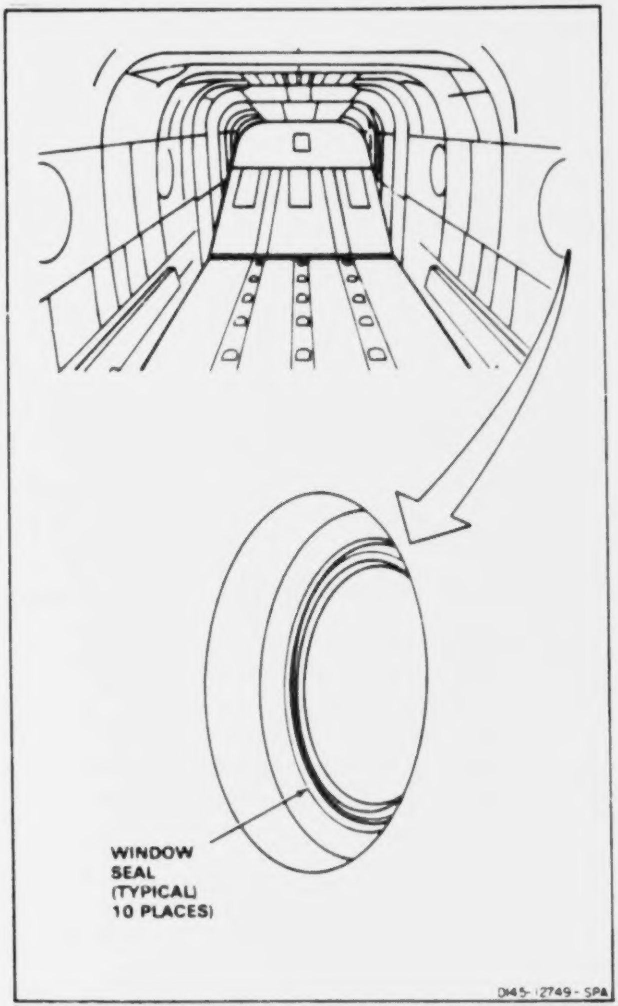
References:
TM 55-1520-240-23P

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Cabin Window Removed (Task 2-165.1)

General Safety Instructions:

WARNING

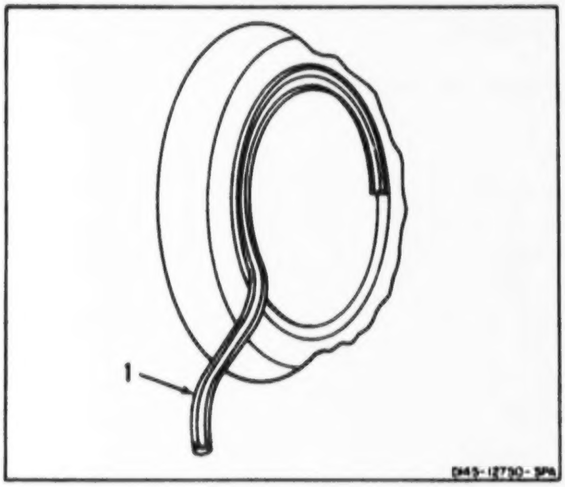
Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



GO TO NEXT PAGE

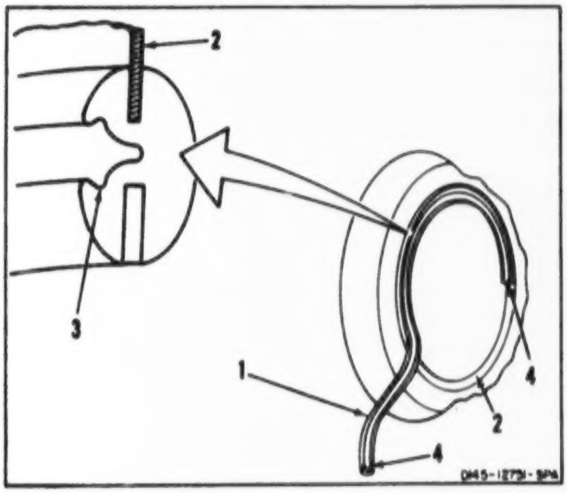
2-165.3 REPLACE SEAL FOR CABIN WINDOW 173S2904-3 AND 1560-CH47-944 (Continued) 2-165.3

REMOVE SEAL



1. **Remove seal (1)** from around window opening.
2. **Clean adhesive** from around window opening. **Use cloths (E120) damp with dry cleaning solvent (E162).** Wear gloves (E186) and goggles.
3. **Touch up bare skin areas (Task 2-352).**

INSTALL SEAL



WARNING

Seal 173S2904-4 must be used with windows 173S2904-3 and 1560-CH47-944.If any other seal is used, window could be lost in flight or not release in an emergency. Injury to personnel could result.

4. **Fit seal (1) to window opening** by installing channel of seal (1) over edge of window opening (2). **Filler channel (3) shall face inboard.**
5. **Mark end of seal (1) where ends (4) overlap about 1/8 inch** . Remove seal.
6. **Cut seal (1) to marked length.** Make cut at right angles to seal length. Cut shall be straight and smooth.
7. **Clean both ends (4)** of seal (1). **Use clean cloths (E120) damp with alcohol (E64).**

GO TO NEXT PAGE

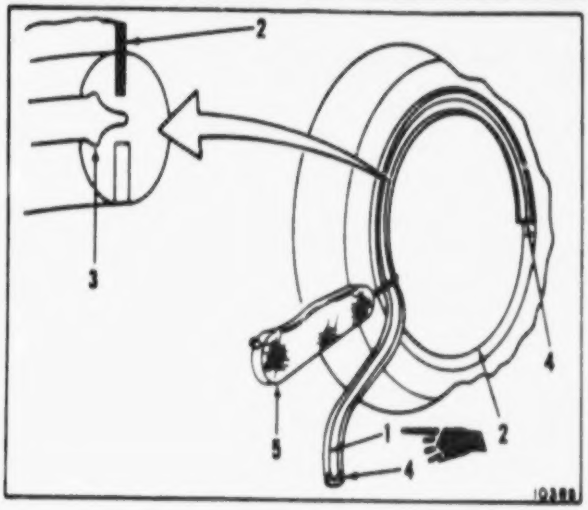
2-165.3 REPLACE SEAL FOR CABIN WINDOW 173S2904-3 AND 1560-CH47-944 (Continued) 2-165.3

WARNING

If seal is secured to fuselage with adhesive, too much force will be needed to release window in an emergency. Injury to personnel could result.

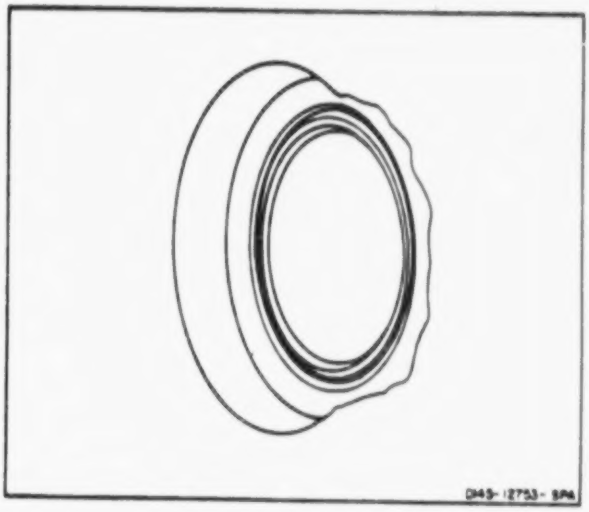
8. **Install** channel of **seal (1)** over edge of window opening (2). **Start at forward center of opening with filler channel (3) facing inboard.** Continue around entire edge. **use seal installation tool (5)** to get a snug fit.

9. **Apply** a light coat of **sealant (E332.1)to both ends (4)** of seal (1). **Press both ends of seal together** to finish installation.



10. **Remove sealant squeezeout.** Use cloths (E120) damp with solvent (E162).

INSPECT



FOLLOW-ON MAINTENANCE:

Install cabin window (Task 2-165.4).

END OF TASK

2-165.4 INSTALL CABIN WINDOW 2-165.4

INITIAL SETUP

Applicable Configurations:
All

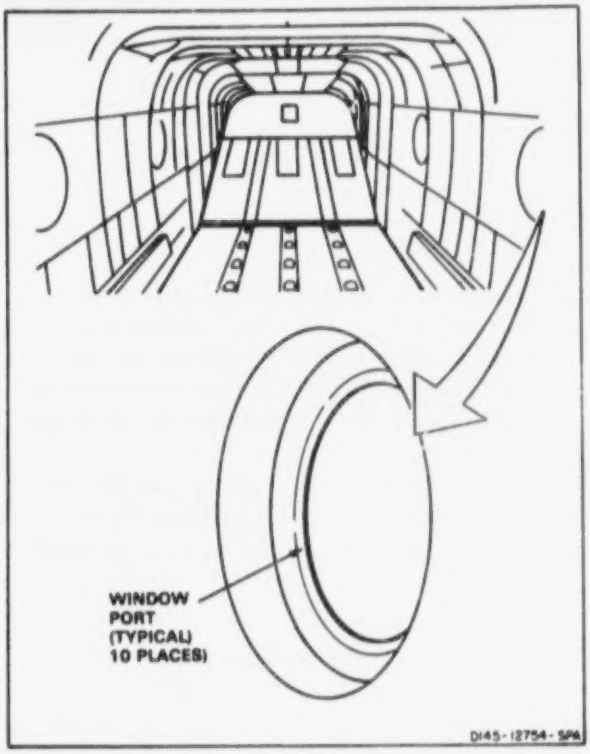
Tools:
Window Tool 756460
Window Tool 756475
Workstand

Materials:
Soap (E353)

Parts:
Seals

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

References:
Task 2-165.2
Task 2-165.3
TM 55-1520-240-23P



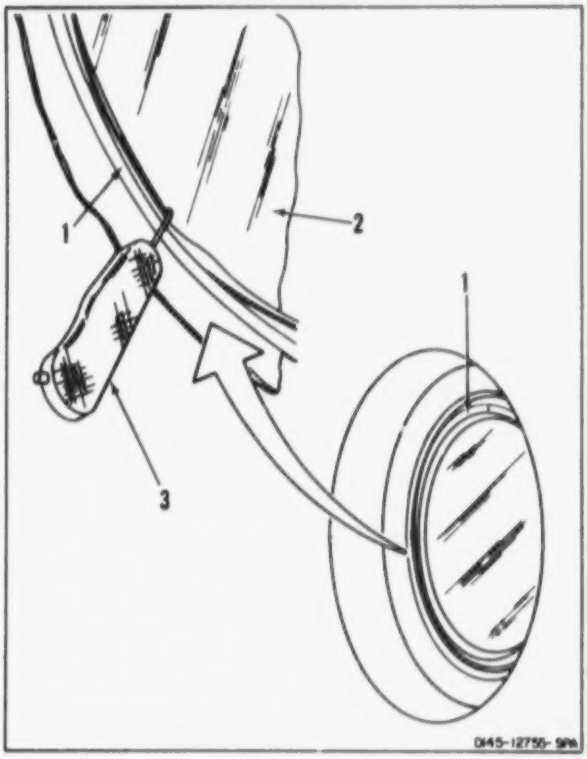
WARNING

If seal is not changed, be sure to install same part number window as was removed. If it is not, window could be lost in flight or not release in an emergency. Injury to personnel could result.

NOTE

Procedure is same to install window at any of 10 locations except as noted.

1. **Inspect seal (1).** If seal is damaged, replace it (Task 2-165.2 or 2-165.3).
2. Working from inside helicopter, **position window (2) with part number at 12 o'clock. Insert window into channel of seal (1) at 6 o'clock** position as far as it will go.
3. Lift lip of seal (1) with tool (3) and **slip window (2) into seal channel. Install window** in seal, working **in both directions from 6 o'clock** starting point.



GO TO NEXT PAGE

2-165.4 INSTALL CABIN WINDOW (Continued) 2-165.4

4. **Wet seal filler channel (4)** with soap (E353) and water.

WARNING

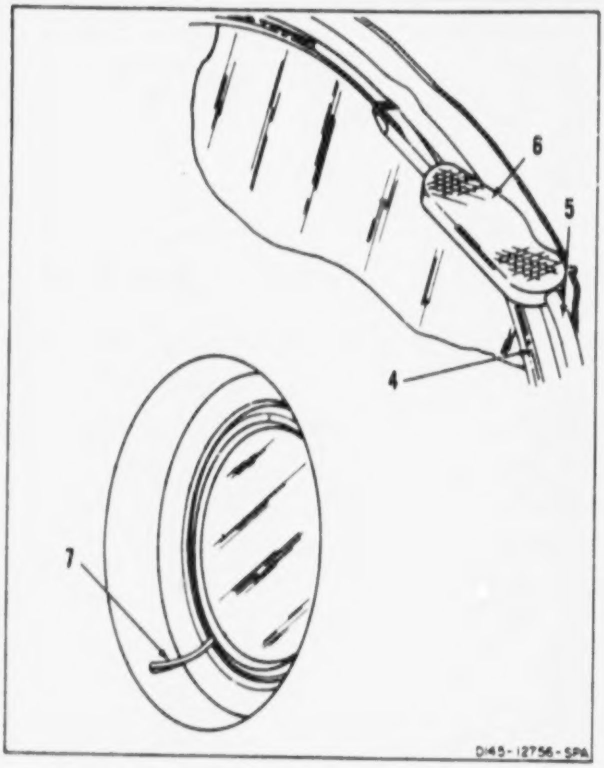
Seal filler must be installed in one piece. If it is not, all filler will not come out when strap is pulled. Hatch may not release, trapping personnel.

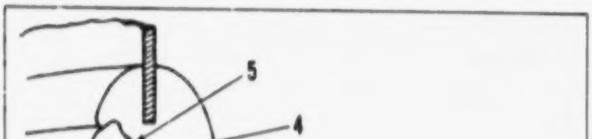
5. Insert seal filler (5) in handle of seal filler installation tool (6).

NOTE

The two forward windows do not utilize release strap (7).

6. **Install seal filler (5) into filler channel (4). Start at 12 o'clock** position. When starting, hold end of seal filler in position with thumb. **Continue until** installed seal reaches **release strap (7)**.
7. At bottom of window (2), **remove tool (6)** from seal filler (5). **Pass seal filler through release strap (7).**
8. **Install tool (6)** on seal filler (5). **Continue installing filler** in channel (4). **If installing a new filler, overlap the starting end about 3/16 inch and cut.**
9. **Butt ends** of seal filler (5) **together. Press filler into channel (4)** of seal (1). Use spur (8) on handle of installation tool (6).





INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE 2-166

INITIAL SETUP

Applicable Configurations:
All

Tools:
Locating and Drill Fixture, Brackets, Sync Shaft (T113)
Checking Fixture (T83)

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-167
Task 2-168
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1 Cabin equipment support structures include supports for drive shafts, cargo hook, and fuel relay box There are also intercostals serving as litter strap supports and brackets for cabin dome lights The aft fuselage contains combining transmission longitudinal support beams and ramp actuator supports

2 Support structures are located as follows

a Six drive shaft supports are on cabin crown panel at sta 162 12 through 180 12, 200 12 through 220 12, 260 12 through 380 12, 300 12 through 320 12, 360 12 through 380 12, and 400 12 through 420 12

b Forward cargo hook support is between sta 240 and 260 Support is aluminum alloy forging with bonded reinforcing members

c Center cargo hook support is between sta 320 and 360 Support is made of aluminum reinforcing members

d Aft cargo hook support is between sta 400 and 420 Support is aluminum alloy forging with bonded reinforcing members

e Litter strap intercostals are flanged webs between sta 160 and 180 01, 240 and 260 and 280, 340 and 360, and 360 and 380 on each side of cabin fuselage crown panel

f Cabin dome light brackets are at sta 175 50, 248 50, 345 75, and 432 50

g Combining transmission longitudinal support beams are located on the cabin crown panel between sta 440 and 482 Supports are box sections of aluminum and corrosion-resistant steel

h Ramp actuator support between sta 482 and 502 43 at wl -5 8 on each side of fuselage Support is aluminum alloy web with extruded cap

3 Check all support structures for holes, cracks, elongated holes, or damage to formed parts or extrusions

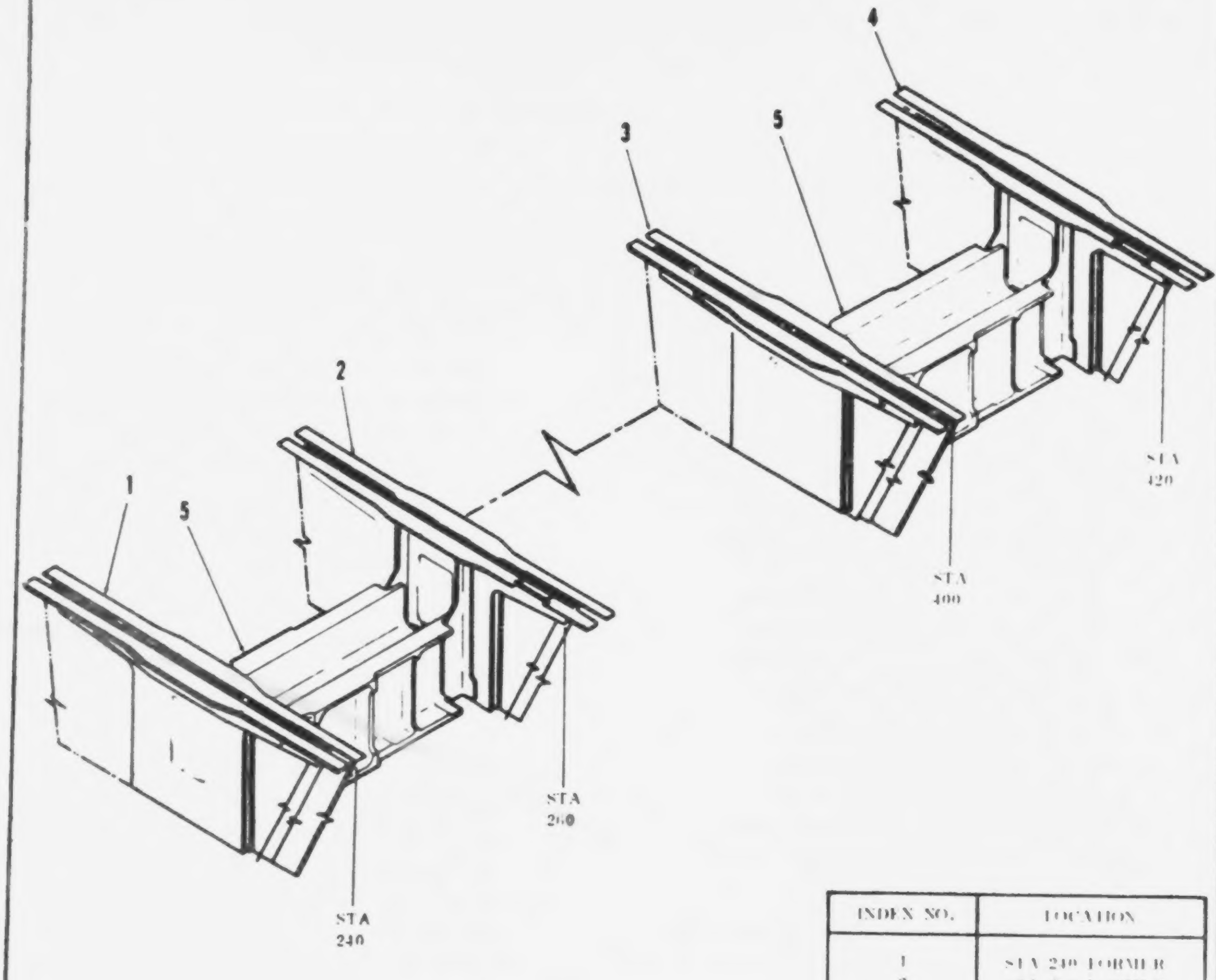
CAUTION

Damage to drive shaft supports can affect drive shaft alignment. Drive shaft misalignment may not exceed 1/4 degree . Damage affecting size or location of mounting holes requires special tools (T113) and (T83).

4 Damage to cabin equipment support structures is classified as minor damage (Task 2-167), major damage or damage requiring replacement (Task 2-168)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166


4
3
5
2
1
5
STA
420
STA
400
STA
260
STA
240

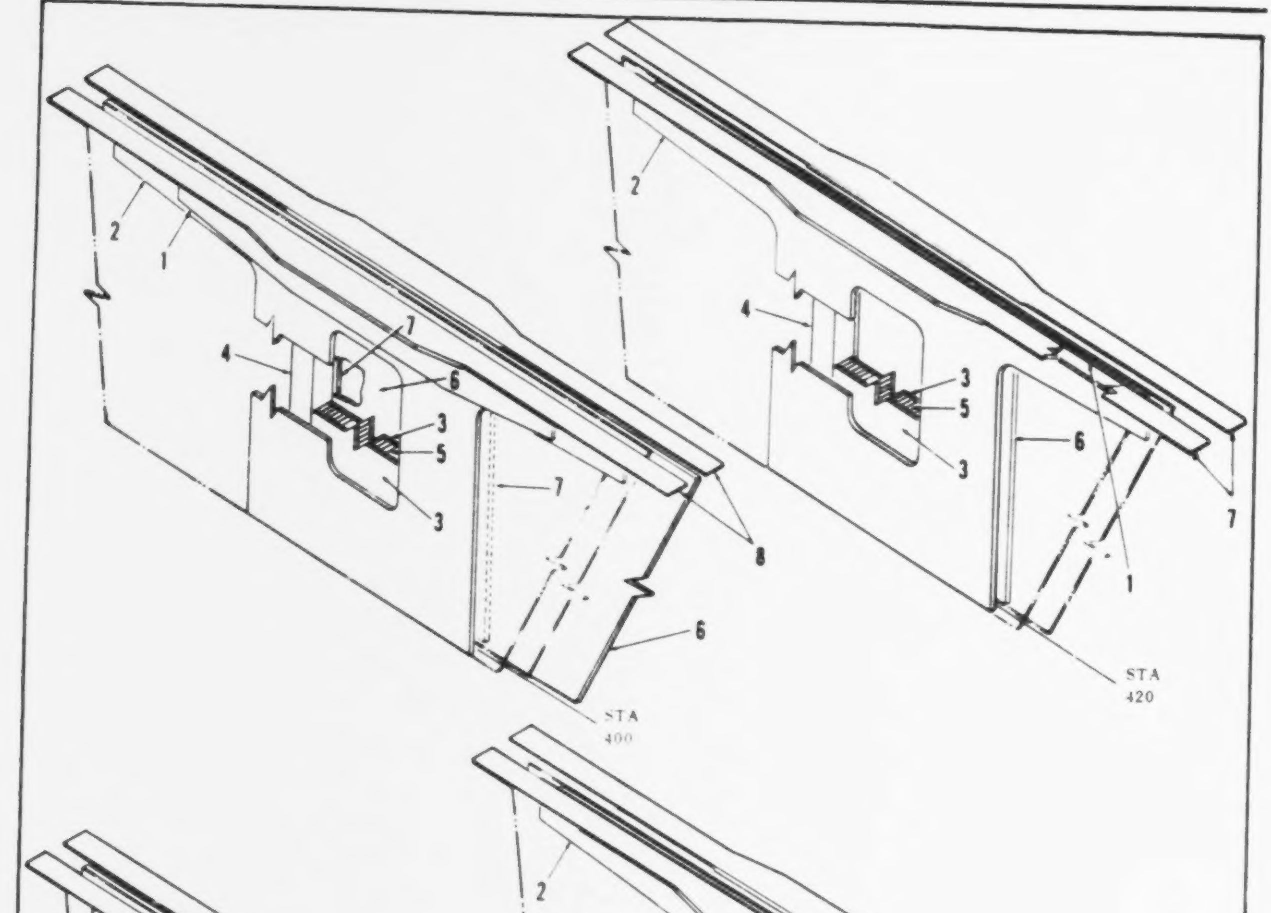
INDEX NO.	LOCATION
1	STA 240 FORMER
2	STA 260 FORMER
3	STA 400 FORMER
4	STA 420 FORMER
5	SUPPORT FITTING

42 X 51
D145-10325-SPA

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 1 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166


1
2
3
4
5
6
7
8
STA 400
STA 420
STA 240
STA 260
FWD
42 X 51
D145-10326-SPA

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 2 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166

BOTTOM FORMERS
STA 240

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	REINFORCEMENT STRAP	0.050 7075-T6 BARE	0.063 7075-T6 BARE NOTE C	NOTE D.
2	DOUBLER, FORWARD	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE C.	NOTE D.
3	FACE SHEET	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B.	NOTE D.
4	INSERT	0.500 7075-T6 BARE	0.500 7075-T6 BARE NOTE B	NOTE D.
5	CORE	0.405 3.0-3/8-20N-3003	NOTE B	NOTE D.
6	DOUBLER, AFT	0.016 7075-T6 BARE	0.020 7075-T6 BARE NOTE B.	NOTE D.
7	DOUBLER, AFT	0.050 7075-T6 BARE	0.063 7075-T6 BARE NOTE B	NOTE D
8	REINFORCEMENT STRAP	0.190 7075-T6 BARE	0.190 7075-T6 BARE NOTE C	NOTE D.

STA 260

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	REINFORCEMENT STRAP	0.125 7075-T6 BARE	0.125 7075-T6 BARE NOTE C	NOTE D.
2	DOUBLER, FORWARD	0.050 7075-T6 BARE	0.063 7075-T6 BARE NOTE C	NOTE D
3	FACE SHEET	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B	NOTE D.
4	INSERT	0.375 7075-T6 BARE	0.375 7075-T6 BARE NOTE B	NOTE D.
5	CORE	0.255 3.0-3/8-20N-3003	NOTE B	NOTE D
6	DOUBLER, AFT	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B	NOTE D
7	REINFORCEMENT STRAP	0.190 7075-T6 BARE	0.190 7075-T6 BARE NOTE C	NOTE D.

STA 400

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	REINFORCEMENT STRAP	0.125 7075-T6 BARE	0.125 7075-T6 BARE NOTE C	NOTE D
2	DOUBLER, FORWARD	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE C	NOTE D
3	FACE SHEET	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B	NOTE D
4	INSERT	0.375 7075-T6 BARE	0.375 7075-T6 BARE NOTE B	NOTE D
5	CORE	0.255 3.0-3/8-20N-3003	NOTE B	NOTE D
6	DOUBLER, AFT	0.016 7075-T6 BARE	0.020 7075-T6 BARE NOTE B	NOTE D
7	DOUBLER, AFT	0.050 7075-T6 BARE	0.063 7075-T6 BARE NOTE B	NOTE D
8	REINFORCEMENT STRAP	0.375 7075-T6 BARE	0.375 7075-T6 BARE NOTE C	NOTE D

STA 420

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	REINFORCEMENT STRAP	0.125 7075-T6 BARE	0.125 7075-T6 BARE NOTE C	NOTE D
2	DOUBLER, FORWARD	0.050 7075-T6 BARE	0.063 7075-T6 BARE NOTE B	NOTE D
3	FACE SHEET	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B	NOTE D
4	INSERT	0.375 7075-T6 BARE	0.375 7075-T6 BARE NOTE B	NOTE D
5	CORE	0.255 3.0-3/8-20N-3003	NOTE B	NOTE D
6	DOUBLER, AFT	0.020 7075-T6 BARE	0.025 7075-T6 BARE NOTE B	NOTE D

NOTES:

A All dimensions are in inches

B Component of bonded assembly. Refer to Task 2-358

C Replace with same material as original

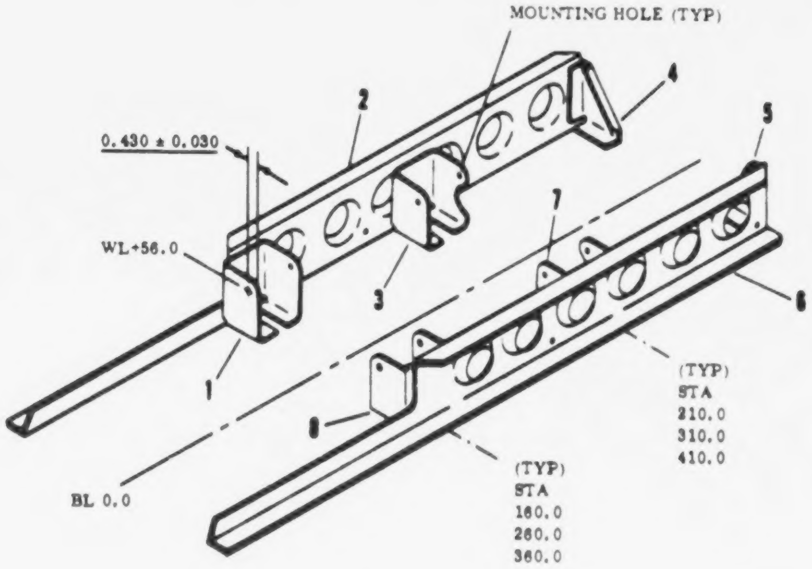
D TM 55-1500-204-25/1

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 3 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166

DRIVE SHAFT SUPPORTS--STATIONS 160.0, 210.0, 260.0, 310.0, 360.0 AND 410.0



STATIONS 160.0, 260.0, AND 360.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	BRACKET	0.080 2024-T4 CLAD	NOTE B.
2	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
4	BRACKET	0.032 2024-T4 CLAD	NOTE C.
5	BRACKET	0.032 2024-T4 CLAD	NOTE C.
6	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
8	BRACKET	0.080 2024-T4 CLAD	NOTE B.

STATIONS 210.0, 310.0, AND 410.0

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
2	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
3	BRACKET	0.080 2024-T4 CLAD	NOTE D.
4	BRACKET (2 REQD)	0.032 2024-T4 CLAD	NOTE C.
5	BRACKET (2 REQD)	0.032 2024-T4 CLAD	NOTE C.
6	SUPPORT	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
7	BRACKET	0.080 2024-T4 CLAD	NOTE D.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. REPLACE WITH NEW BRACKET 114S2352-38 RH AND -37 LH FOR STATION 160.0 ONLY, 114S2352-40 RH AND FOR STATION 160.0 ONLY, 114S2352-40 RH AND -39 LH FOR STATION 260.0 ONLY, AND 114S2352-42 RH AND -41 LH FOR STATION 360.0

C. REPLACE WITH NEW BRACKET 114S2745-1

D. REPLACE WITH NEW BRACKET 114S2352-36 RH AND -35 LH

42 X 51

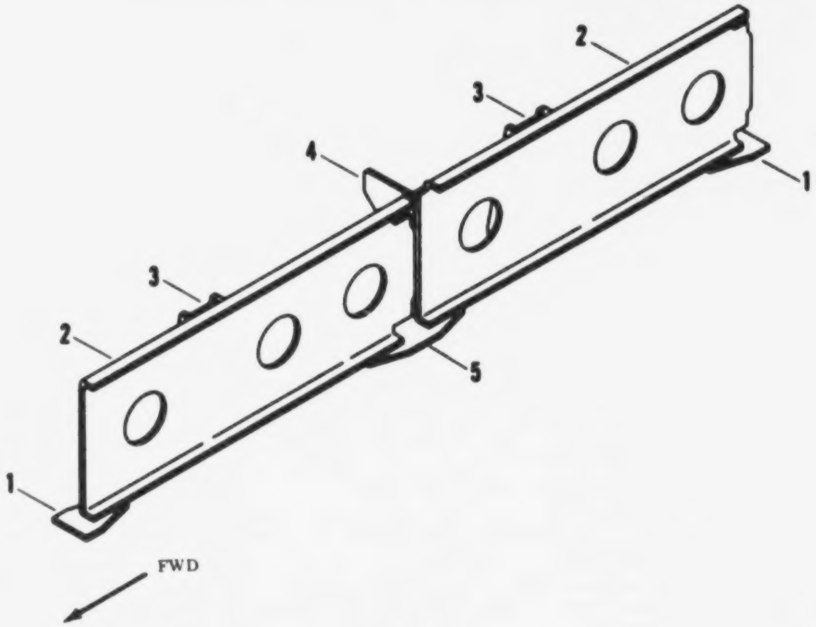
D145-10328-SPA

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 4 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166

LITTER STRAP SUPPORT--STATIONS 160.0,TO 180.0, 240.0 TO 260.0,
260.0 TO 280.0, 340.0 TO 360.0, AND 360.0 TO 380.0



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	GUSSET	0.032 2024-T4 CLAD	NOTE C.
2	WEB	0.025 7075-T6 CLAD	0.032 7075-T6 CLAD
3	BRACKET	0.063 2024-T4 CLAD	0.063 2024-T3 CLAD
4	ANGLE	0.032 7075-T6 CLAD	NOTE E.
5	GUSSET	0.032 2024-T4 CLAD	NOTE D.

NOTES

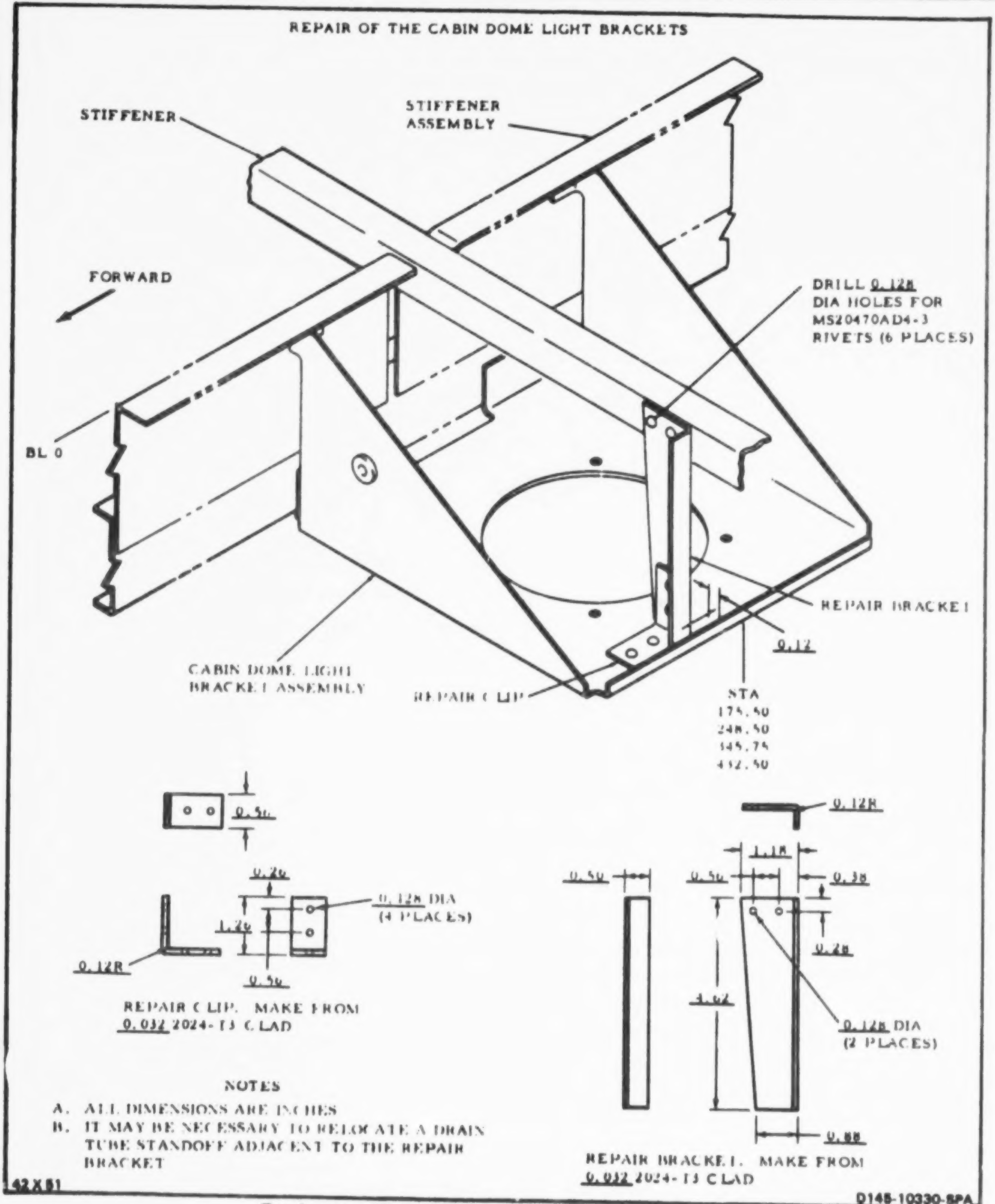
A. ALL DIMENSIONS ARE IN INCHES
B. THE RH BEAM IS SHOWN. THE LH BEAM IS SIMILAR IN CONSTRUCTION. REPAIR DATA LISTED IS APPLICABLE TO BOTH CONFIGURATIONS
C. REPLACE WITH NEW GUSSET 114S2351-23 RH AND LH
D. REPLACE WITH NEW GUSSET, 114S2351-21 RH AND LH
E. REPLACE WITH NEW ANGLE, 114S2351-31 RH AND -29 LH

42 X 51 D145-10329-SPA

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 5 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166


REPAIR OF THE CABIN DOME LIGHT BRACKETS
STIFFENER
STIFFENER ASSEMBLY
FORWARD
DRILL 0.128 DIA HOLES FOR MS20470AD4-3 RIVETS (6 PLACES)
BL 0
REPAIR BRACKET
0.12
CABIN DOME LIGHT BRACKET ASSEMBLY
REPAIR CLIP
STA
175.50
248.50
345.75
432.50
0.56
0.26
0.128 DIA
(4 PLACES)
1.26
0.12R
0.56
0.12R
1.18
0.50
0.50
0.38
0.28
4.62
0.128 DIA
(2 PLACES)
0.88
42X51
D145-10330-8PA

REPAIR CLIP. MAKE FROM 0.032 2024-T3 CLAD

REPAIR BRACKET. MAKE FROM 0.032 2024-T3 CLAD

NOTES

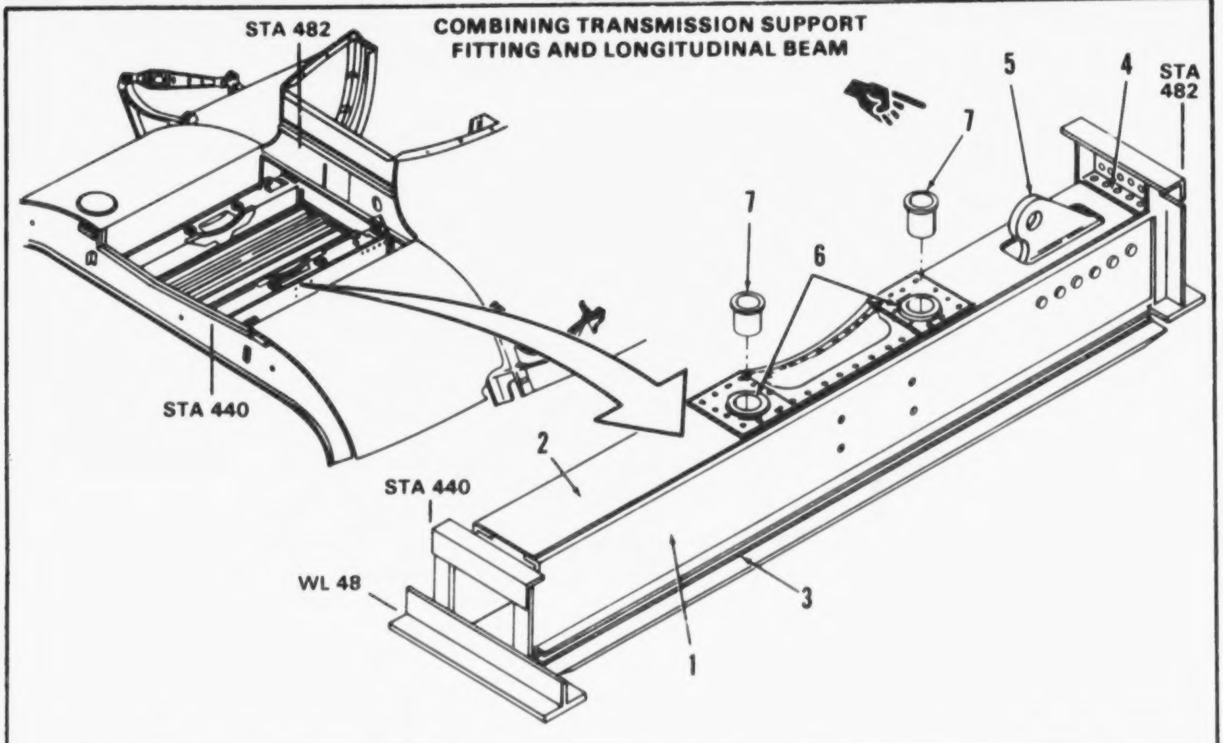
A. ALL DIMENSIONS ARE INCHES

B. IT MAY BE NECESSARY TO RELOCATE A DRAIN TUBE STANDOFF ADJACENT TO THE REPAIR BRACKET

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 6 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166


COMBINING TRANSMISSION SUPPORT FITTING AND LONGITUDINAL BEAM
STA 482
STA 440
STA 482
STA 440
WL 48
1
2
3
4
5
6
7
7

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ZEE	VS90603 7075-T6		NOTE B
2	WEB	0.080 CRES 17-7PH HT TR150-170KSI		
3	CHANNEL	0.0252 024-T4		
4	ANGLE	ALCOA 22526 7075-T6		
5	HOIST ATTACHMENT	VS90520 7075-T6	NOTE C	
6	SUPPORT	EXTRUSION 2D14-T6	NOTE D	
7	BUSHING	4130 STL RD BAR	NOTE E	

NOTES

A. ALL DIMENSIONS ARE IN INCHES.

B. REFER TO TM 55-1500-204-25/1.

C. REPLACE WITH NEW HOIST ATTACHMENT 114S3814-1 LH AND -2 RH.

D. REPLACE WITH NEW SUPPORT FITTING 234S3821-1 LH AND -2 RH. USE TOOL (T-182). AT LEAST ONE FITTING MUST BE IN PLACE FOR REFERENCE POINT. OTHERWISE, THIS REPAIR MUST BE ACCOMPLISHED AT A HIGHER MAINTENANCE LEVEL.

E. REPLACE WITH NEW BUSHING 114S3703-28.

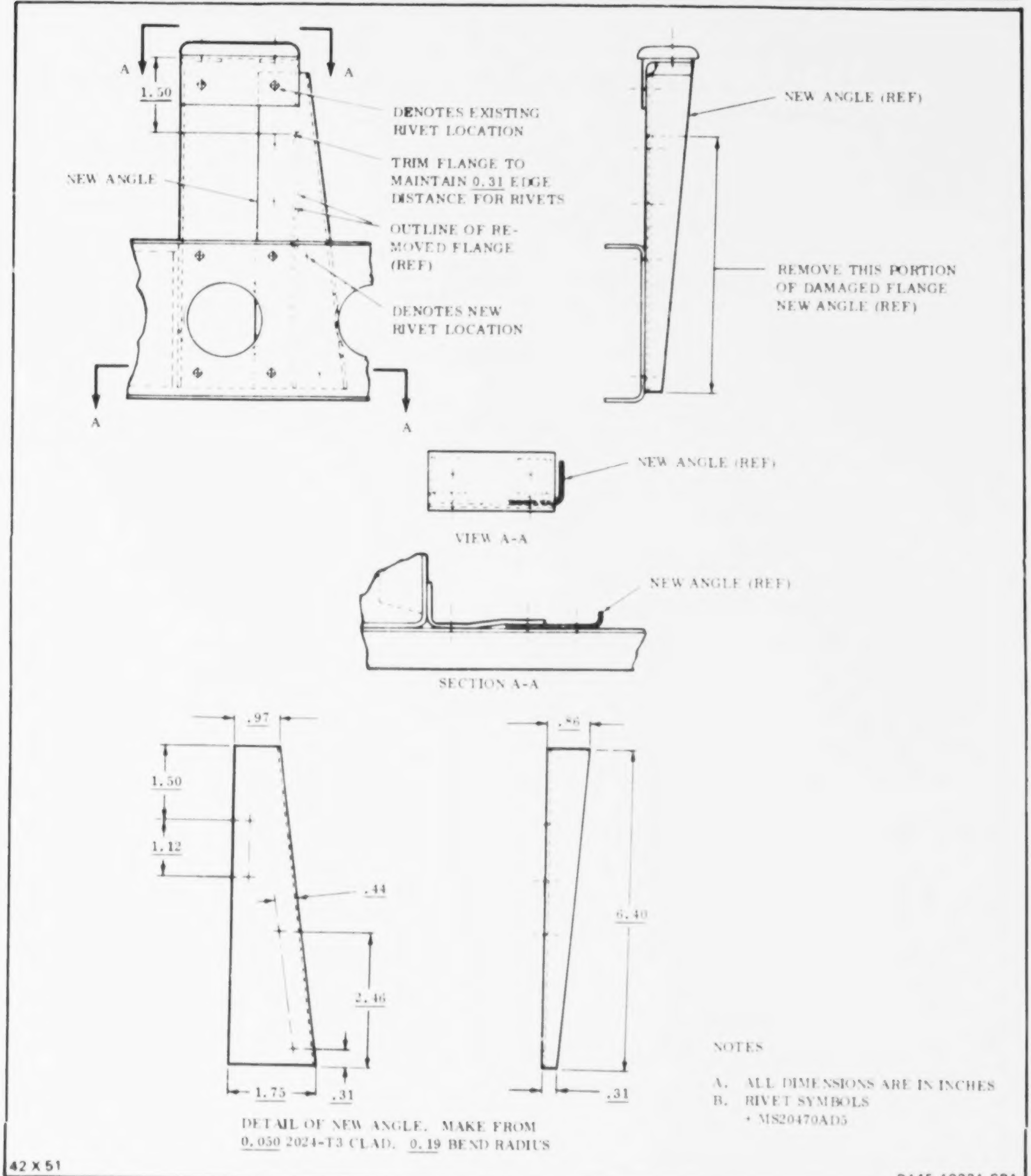
F. THIS REPAIR CONFORMS TO 27.

9508

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 6.1 of 7)

GO TO NEXT PAGE

2-166 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURE (Continued) 2-166


A
A
1.50
DENOTES EXISTING RIVET LOCATION
TRIM FLANGE TO MAINTAIN 0.31 EDGE DISTANCE FOR RIVETS
NEW ANGLE
OUTLINE OF REMOVED FLANGE (REF)
DENOTES NEW RIVET LOCATION
A
A
NEW ANGLE (REF)
REMOVE THIS PORTION OF DAMAGED FLANGE NEW ANGLE (REF)
NEW ANGLE (REF)
VIEW A-A
NEW ANGLE (REF)
SECTION A-A
.97
1.50
1.12
.44
2.46
1.75
.31
.86
6.40
.31
42 X 51
D145 10331 SPA

DETAIL OF NEW ANGLE. MAKE FROM 0.050 2024-T3 CLAD. 0.19 BEND RADIUS

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. RIVET SYMBOLS
+ MS20470AD5

Equipment Support Structure Repairs — Cabin Fuselage Structure (Sheet 7 of 7)

FOLLOW-ON MAINTENANCE:
As required

END OF TASK

2-167 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURES — MINOR DAMAGE 2-167

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-166

Equipment Condition:
As Required

General Safety Instructions:
As Required

Repair cracks by stop drilling. Burnish scratches or dents (Task 2-166).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-168 REPAIR CABIN EQUIPMENT SUPPORT STRUCTURES — MAJOR DAMAGE (AVIM) 2-168

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-166
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair damage to internal webs and formed parts as follows: (Refer to TM 55-1500-204-25/1 and Task 2-166.)
    a. Repair damage affecting less than 1/2 of cross section by patching.
    b. Repair damage affecting more than 1/2 of cross section by insertion.
2. Repair damage to formed parts or extrusions as follows: (Refer to TM 55-1500-204-25/1 and Task 2-166.)
    a. Repair damage not affecting radius or heel by patching.
    b. Repair damage affecting radius or heel by insertion.
3. Damage to flange of tunnel cover support bracket, caused by flex coupling of No. 6 synchronizing shaft, can be repaired as follows: (Refer to TM 55-1500-204-25/1 and Task 2-166.)
    a. Trim bracket flange.
    b. Install angle.
4. Repair cabin dome light brackets. Use standard methods. Add bracket and clip.
5. Replace cabin equipment support structural parts having extensive damage or several damaged areas. Refer to Task 2-166 and TM 55-1500-204-25/1.

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-169 REMOVE CABIN CROWN ACCESS DOORS (TUNNEL COVERS) 2-169

INITIAL SETUP

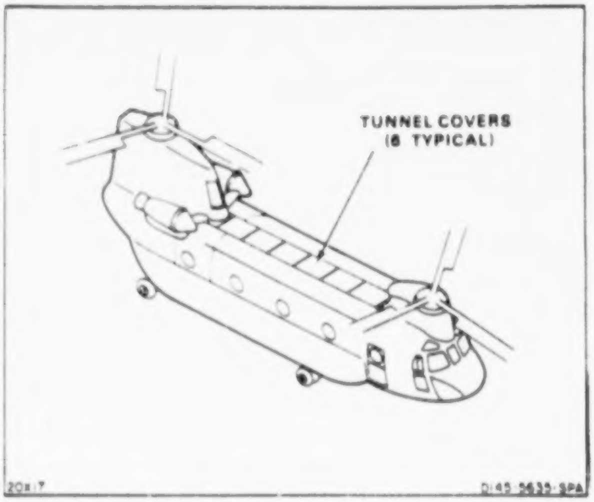
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Material:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


TUNNEL COVERS
(6 TYPICAL)
20X17
D145-5635-SPA

NOTE

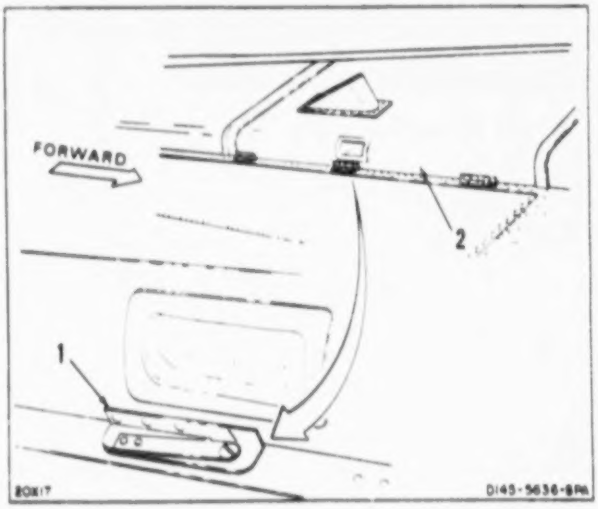
To remove No. 1, No. 3, and No. 5 access doors (tunnel covers), go to step 1. To remove No. 2, No. 4, and No. 6, go to step 9.

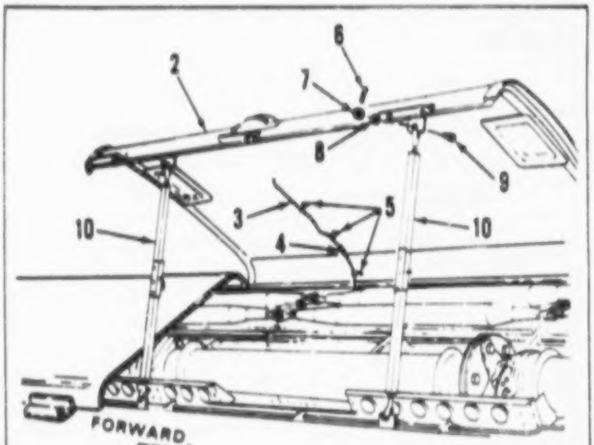
REMOVE NO. 1, NO. 3, AND NO. 5 ACCESS DOORS

NOTE

Procedure is similar to remove No. 1, No. 3, and No. 5 access doors, except where noted in text. No. 1 access door is shown here.

1. Loosen three fasteners (1) on No. 1 access door (2) and **open door.**
2. On No. 1 door (2) only, **disconnect formation light cable (3)** as follows:
   a. Disconnect formation light cable (3) at connector (4).
   b. Remove three cable support screws (5).
3. **Remove** cotter pin (6), nut (7), washer (8), and **bolt (9)** from two supports (10) and door (2).
4. **Remove tops of supports (10)** from door (2) and **stow supports in tunnel area.**

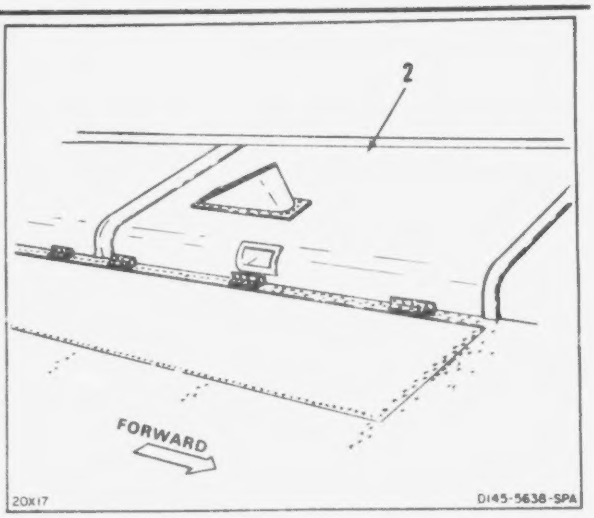

FORWARD
2
1
20X17
D145-5636-SPA


6
2
7
8
9
3
5
10
10
4
FORWARD
20X17
D145-5637-SPA

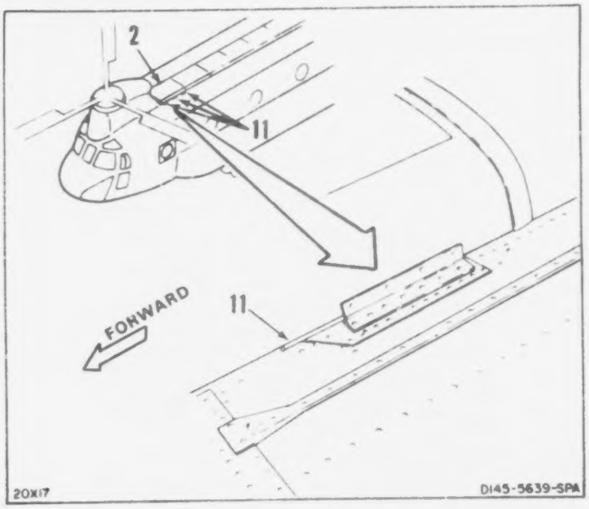
GO TO NEXT PAGE

2-169 REMOVE CABIN CROWN ACCESS DOORS (TUNNEL COVERS) (Continued) 2-169

5. **Close door (2).**


2
FORWARD
20X17
D145-5638-SPA

6. Remove lockwire from three hinge pins (11) on door (2).
7. **Remove three hinge pins (11).**
8. **Remove door (2).**

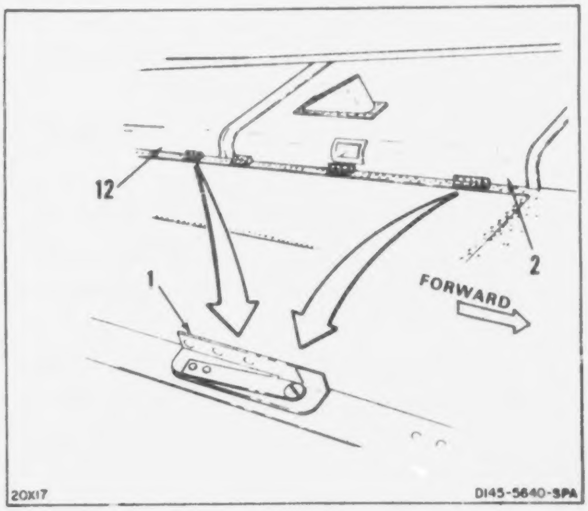

2
11
FORWARD
11
20X17
D145-5639-SPA

REMOVE NO. 2, NO. 4 AND NO. 6 ACCESS DOORS

NOTE

Procedure is same to remove No. 2, No. 4, and No. 6 access doors. No. 2 access door is shown here.

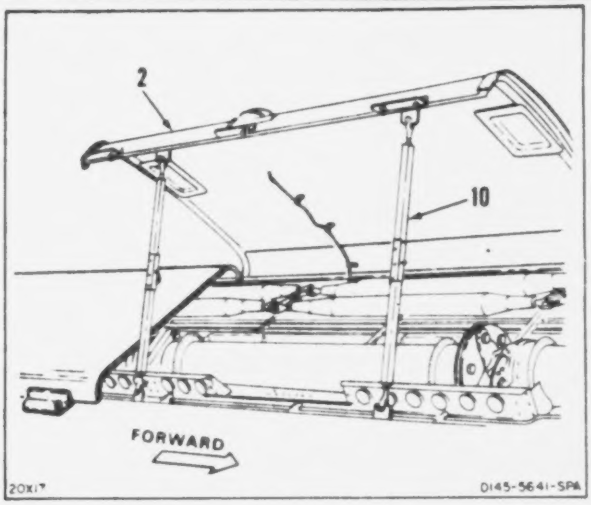
9. **Loosen three fasteners (1)** on No. 1 access door (2).
10. **Loosen two fasteners (1)** on No. 2 access door (12).


12
1
2
FORWARD
20X17
D145-5640-SPA

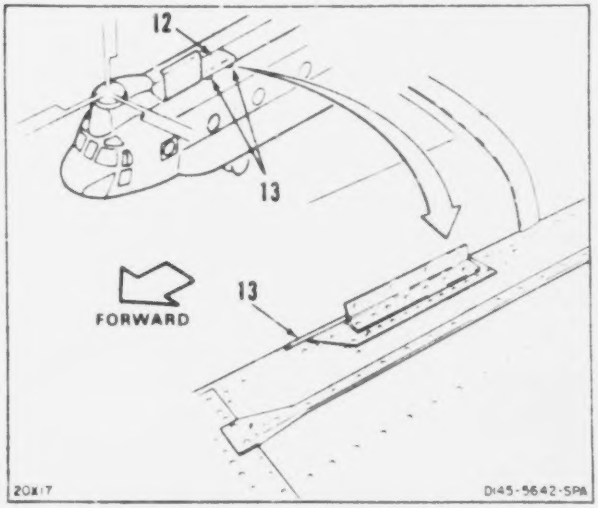
GO TO NEXT PAGE

2-169 REMOVE CABIN CROWN ACCESS DOORS (TUNNEL COVERS) (Continued) 2-169

11. **Open No. 1 access door (2) and position two supports (10) under door.**

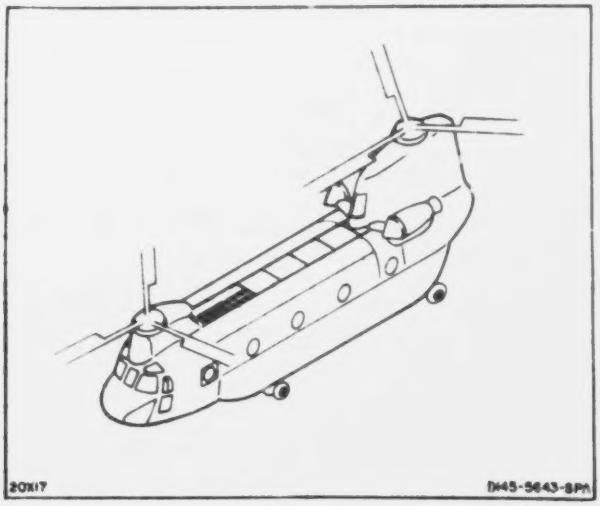

2
10
FORWARD
20X17
D145-5641-SPA

12. Remove lockwire from two hinge pins (13) on No. 2 access door (12).
13. **Remove two hinge pins (13)** from door (12).
14. **Remove door (12).**


12
13
13
FORWARD
20X17
D145-5642-SPA

FOLLOW-ON MAINTENANCE:

None


20X17
D145-5643-SPA

END OF TASK

2-170 INSTALL CABIN CROWN ACCESS DOORS (TUNNEL COVERS) 2-170

INITIAL SETUP

Applicable Configurations:
All

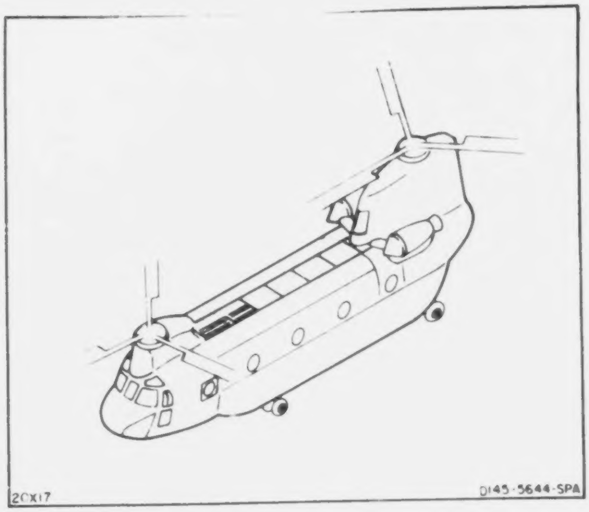
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lockwire (E229)

Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



NOTE

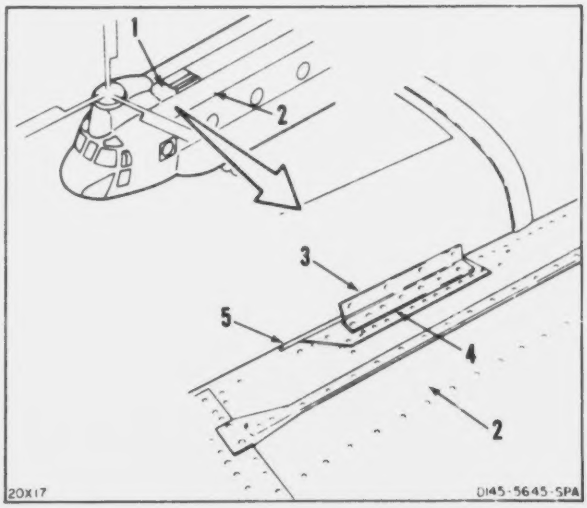
To install No. 1, No. 3, and No. 5 access doors (tunnel covers), go to step 1. To install No. 2, No. 4, and No. 6 access doors (tunnel covers), go to step 9.

INSTALL NO. 1, NO. 3, AND NO. 5 ACCESS DOORS

NOTE

Procedure is similar to install No. 1, No. 3, and No. 5 access doors, except where noted in text. No. 1 access door is shown here.

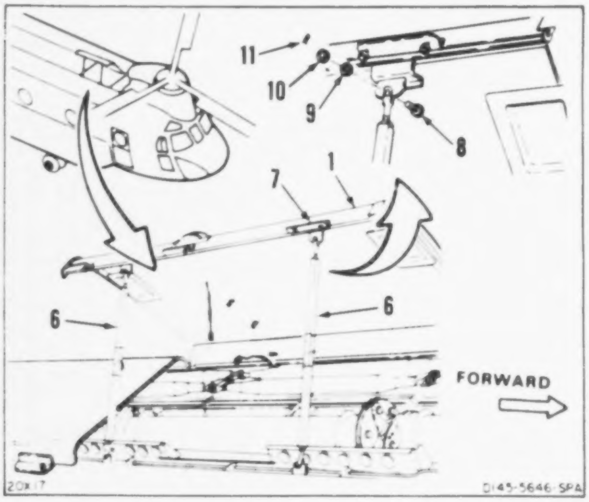
1. **Position No. 1 door (1)** on fuselage (2). Align three hinge leaves (3) on door (1) and three hinge leaves (4) on fuselage (2).
2. **Install three hinge pins (5)** in hinge leaves (3 and 4).
3. Lockwire pins (5). Use lockwire (E229).



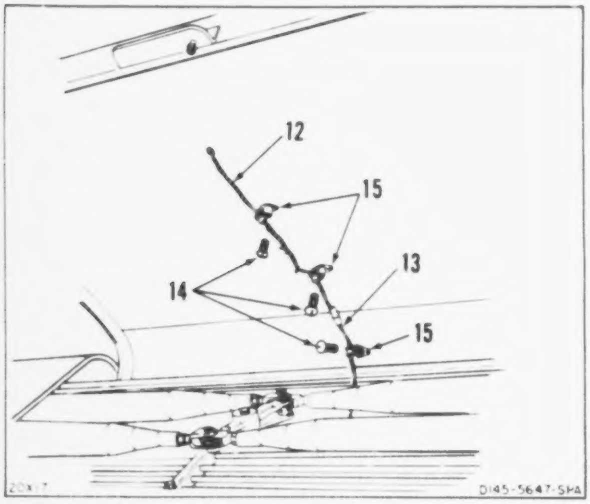
GO TO NEXT PAGE

2-170 INSTALL CABIN CROWN ACCESS DOORS (TUNNEL COVERS) (Continued) 2-170

4. **Open door (1).**
5. Unstow supports (6), and **position supports** on brackets (7).
6. **Install bolt (8),** washer (9), nut (10), and cotter pin (11).


11
10
9
8
7
1
6
6
FORWARD
20X17
D145-5646-SPA

7. On No. 1 door (1) only, **connect formation light cable (12)** as follows:
   a. Connect formation light cable (12) to connector (13).
   b. Install three screws (14) to secure cable (12) to supports (15).


12
15
13
14
15
20X17
D145-5647-SPA

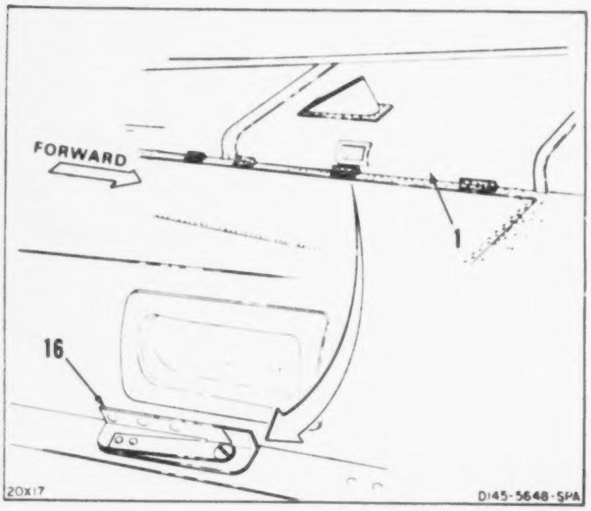
8. **Close door (1). Tighten three fasteners (16).**

INSTALL NO. 2, NO. 4, AND NO. 6 ACCESS DOORS

NOTE

Procedure is same to install No. 2, No. 4, and No. 6 access doors. No. 2 access door is shown here.

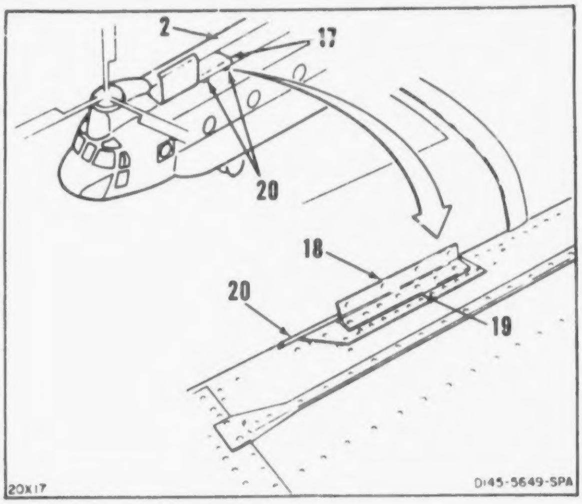
9. Loosen three fasteners (16) on No. 1 door (1). **Open No. 1 door.**


FORWARD
1
16
20X17
D145-5648-SPA

GO TO NEXT PAGE

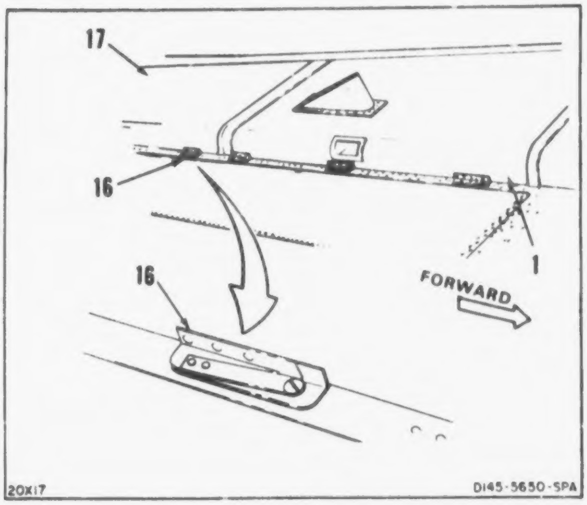
2-170 INSTALL CABIN CROWN ACCESS DOORS (TUNNEL COVERS) (Continued) 2-170

10. **Position No. 2 door (17)** on fuselage (2). Align two hinge leaves (18) on door (17) and two hinge leaves (19) on fuselage (2).
11. **Install two hinge pins (20)** in hinge leaves (18 and 19).
12. Lockwire pins (20). Use lockwire (E229).


2
17
20
18
20
19
20X17
D145-5649-SPA

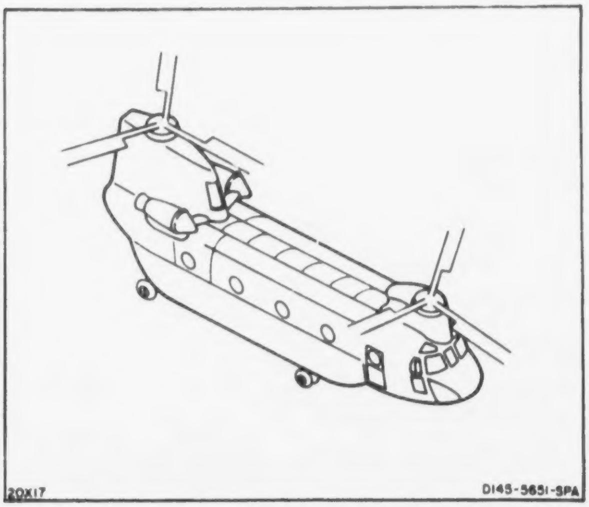
13. **Close No. 1 door (1).**
14. **Tighten five fasteners (16)** on doors (1 and 17).

INSPECT


17
16
16
1
FORWARD
20X17
D145-5650-SPA

FOLLOW-ON MAINTENANCE:

None


20X17
D145-5651-SPA

END OF TASK

2-171 REPAIR CABIN CROWN WALKWAY 2-171

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-172
Task 2-173
TM 55-1500-204-25/1

Equipment Condition:
As Required

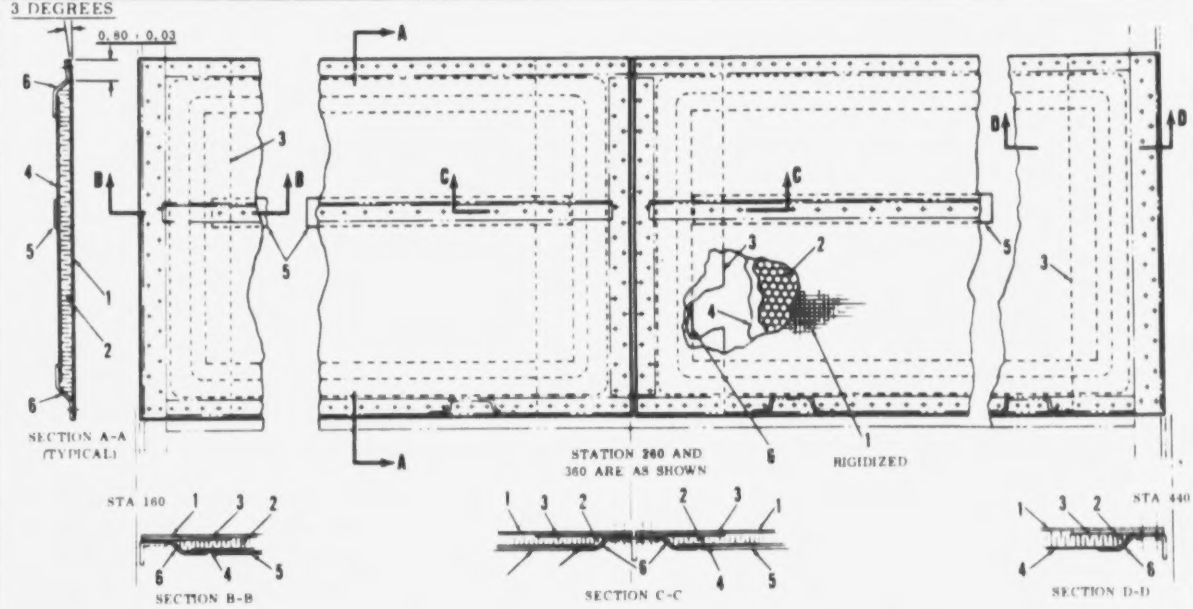
General Safety Instructions:
As Required

1. Walkway panels consist of rigidized aluminum panels bonded to sandwich honeycomb structure. They are fully-coated with black walkway material (E440). Panels are installed on right side of cabin crown from about bl 10 to bl 26. They run from sta 160 thru sta 440.

2. Damage classifications are Minor Damage (Task 2-172), and Damage Requiring Replacement (AVIM) (Task 2-173).

GO TO NEXT PAGE

2-171 REPAIR CABIN CROWN WALKWAY (Continued) 2-171


3 DEGREES
0.80 ± 0.03
6
4
5
1
2
6
SECTION A-A (TYPICAL)
A
A
B
B
C
C
D
D
3
5
5
3
2
4
1
6
RIGIDIZED
STATION 260 AND 360 ARE AS SHOWN
STA 160
STA 440
SECTION B-B
SECTION C-C
SECTION D-D

INDEX	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	RIGIDIZED	0.016 2024-T4 CLAD	NOTE B.
2	CORE	0.50 3.4-1/4-15N-3003	NOTE B.
3	DOUBLER	0.012 7075-T6 CLAD	NOTE B.
4	SKIN	0.012 7075-T6 CLAD	NOTE B.
5	DOUBLER	0.016 7075-T6 CLAD	NOTE B.
6	EDGE MEMBER	NOTE C.	

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. MEMBER OF BONDED ASSEMBLY. REFER TO TM 55-1500-204-25/1 FOR REPAIR TO SANDWICH HONEYCOMB STRUCTURE

C. SCOTCH PLY-2 LAYERS CROSS PLY TYPE XP-114 (0.028 THICK) AND 1 LAYER CROSS PLY TYPE 1002 (0.020 THICK). NON-WOVEN CONTINUOUS FILAMENT

42 X 34

D145-9893-SPA

Cabin Crown Walkway Repairs — Cabin Fuselage Structure Assembly

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-172 REPAIR CABIN CROWN WALKWAY—MINOR DAMAGE

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Parts:
Rivets

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-12
Task 2-356
Task 2-171

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Check that small holes and stop-drilled cracks are within limits (Task 2-12 and Task 2-171).
2. Check that nicks and scratches do not exceed 10 percent of material thickness (Task 2-171).
3. Apply temporary patch, or fill stop-drilled cracks and small holes. Use type A rivet for holes 3/16-inch or less in diameter. Seal all patches and rivets weathertight (Task 2-171).
4. Refinish as required (Task 2-356).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-173 REPAIR CABIN CROWN WALKWAY—DAMAGE REQUIRING REPLACEMENT (AVIM) 2-173

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-14
Task 2-171
Task 2-324
Task 2-356

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Replace walkway panels with extensive damage. This includes loss of major portion of panel, or many damaged areas (Task 2-14 and Task 2-171).
2. Seal as required (Task 2-324).
3. Finish replaced panel (Task 2-356).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-174 REMOVE FOLDOUT STEP 2-174

INITIAL SETUP

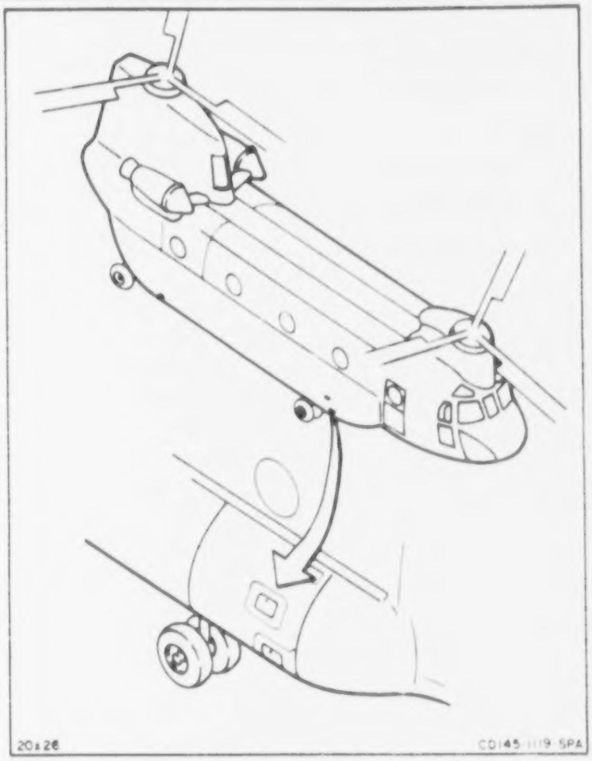
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

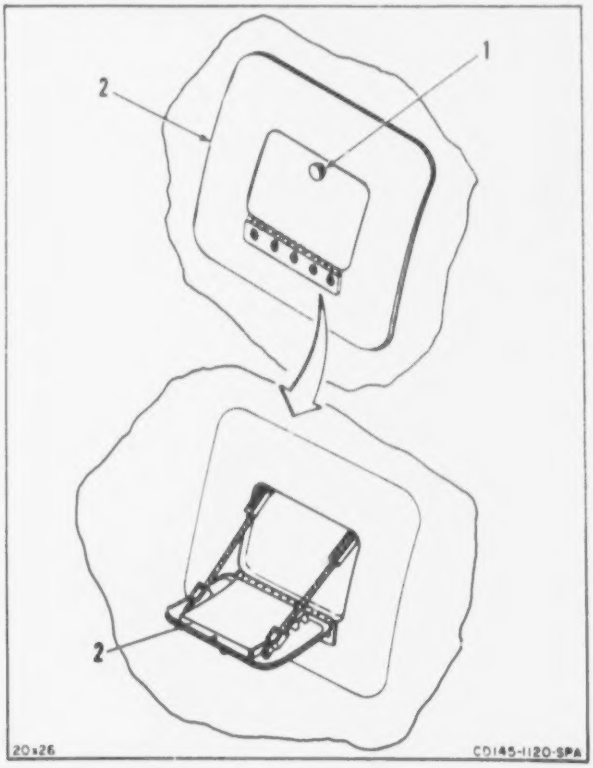
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedures are same for removing all foldout steps.

1. **Pull thumbscrew (1)** down and outward to unlock foldout step (2).
2. **Place step (2) in open position.**



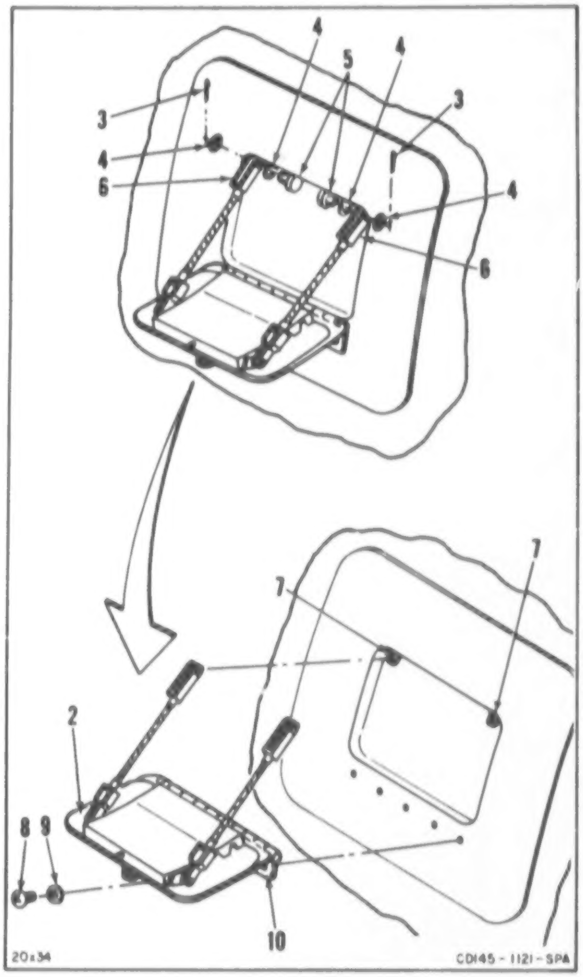
GO TO NEXT PAGE

2-174 REMOVE FOLDOUT STEP (Continued) 2-174

3. **Remove** two cotter pins (3), four washers (4), and **two pins (5) from fittings (6 and 7).**
4. **Remove five screws (8)** and washers (9) from step hinge (10).
5. **Remove foldout step (2).**

FOLLOW-ON MAINTENANCE:

None


4
5
4
3
3
4
6
4
6
7
7
2
8
9
10
20x34
CD145 - 1121 - SPA

END OF TASK

2-175 INSTALL FOLDOUT STEP 2-175

INITIAL SETUP

Applicable Configurations:
All

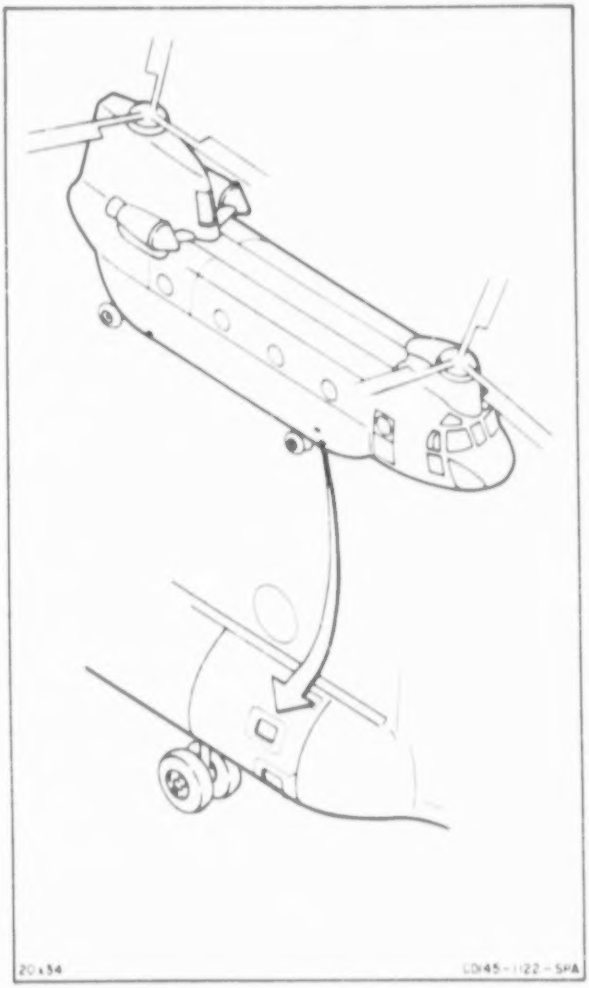
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer

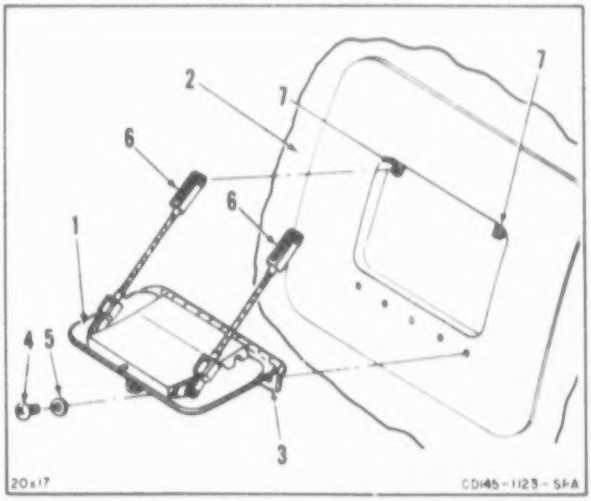
References:
TM 55-1520-240-23P



NOTE

Procedures are same for installing all foldout steps.

1. **Position foldout step (1) on fuselage (2).**
2. Align holes in hinge (3) with holes in fuselage (2). **Install five screws (4) and washers (5).**
3. Align holes in two fittings (6) with attach fittings (7).



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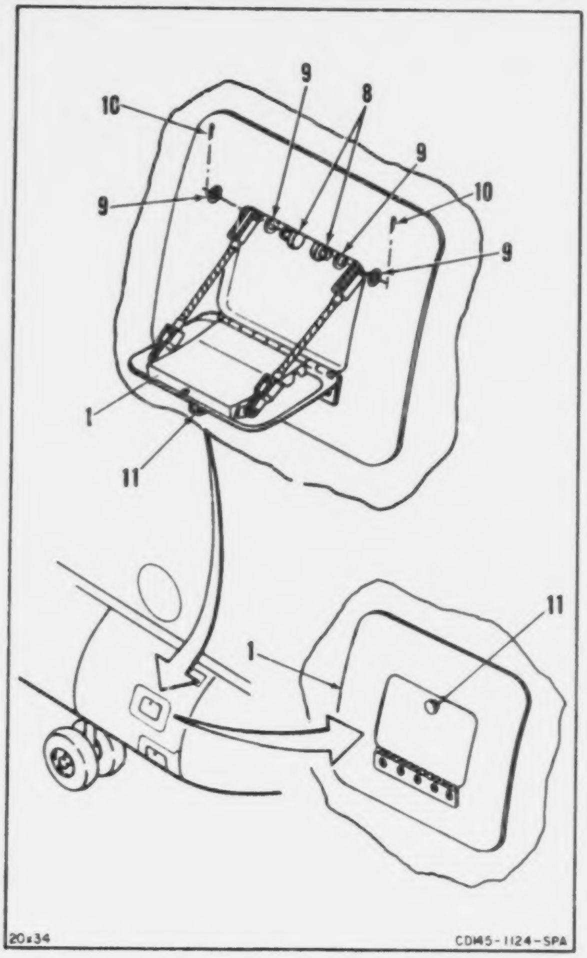
2-175 INSTALL FOLDOUT STEP (Continued) 2-175

4. **Install two pins (8), four washers (9), and new cotter pins (10).**
5. **Close and lock step (1)** with latch thumbscrew (11).


10
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10
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9
1
11
1
11
20x34
CDI45-1124-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-176 REMOVE HANDGRIP

INITIAL SETUP

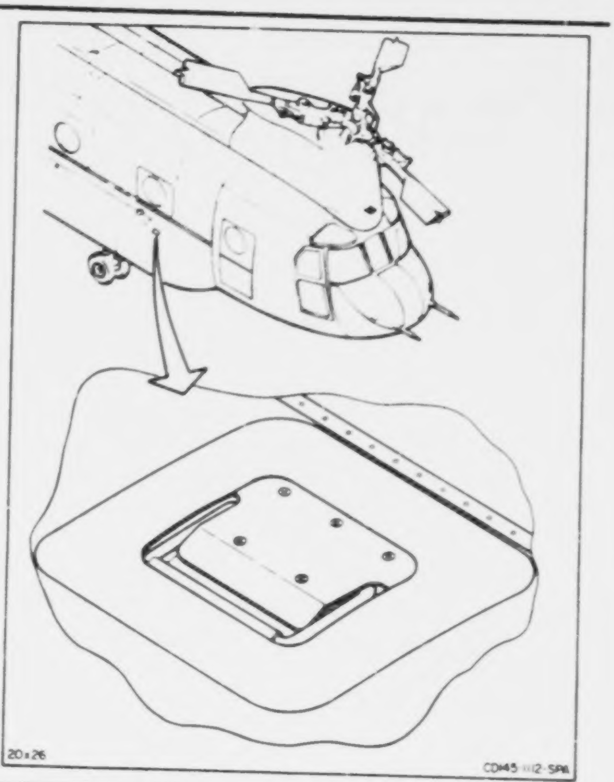
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

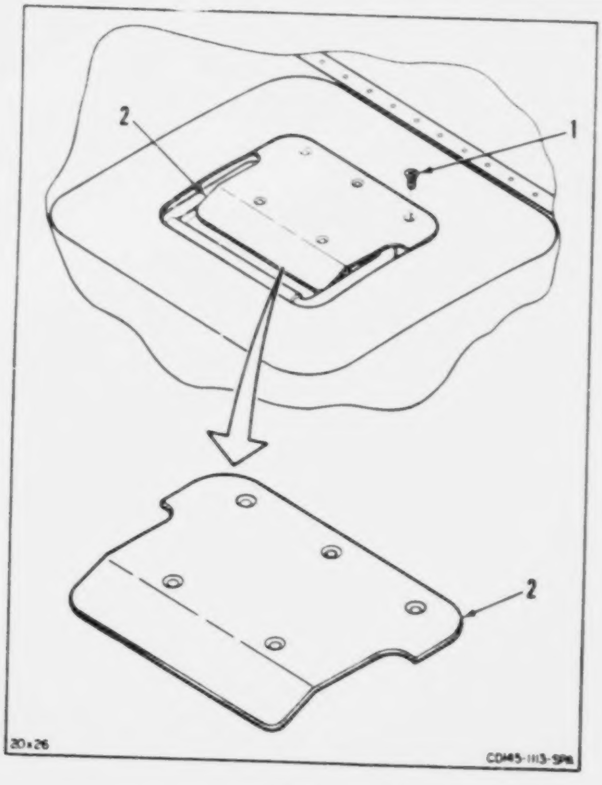
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



1. **Remove five screws (1)** from cover plate (2).
2. **Remove cover plate (2).**



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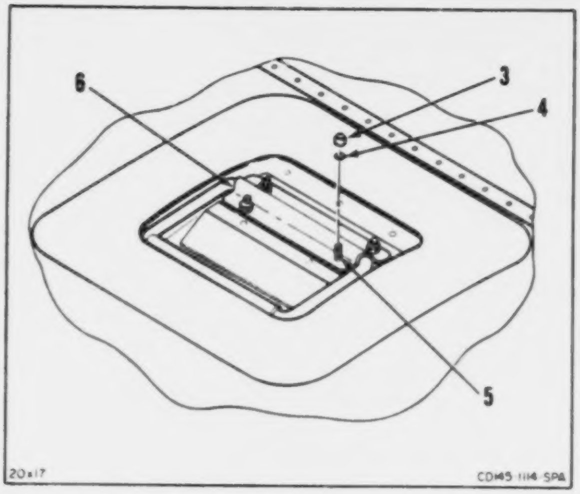
2-176 REMOVE HANDGRIP (Continued) 2-176

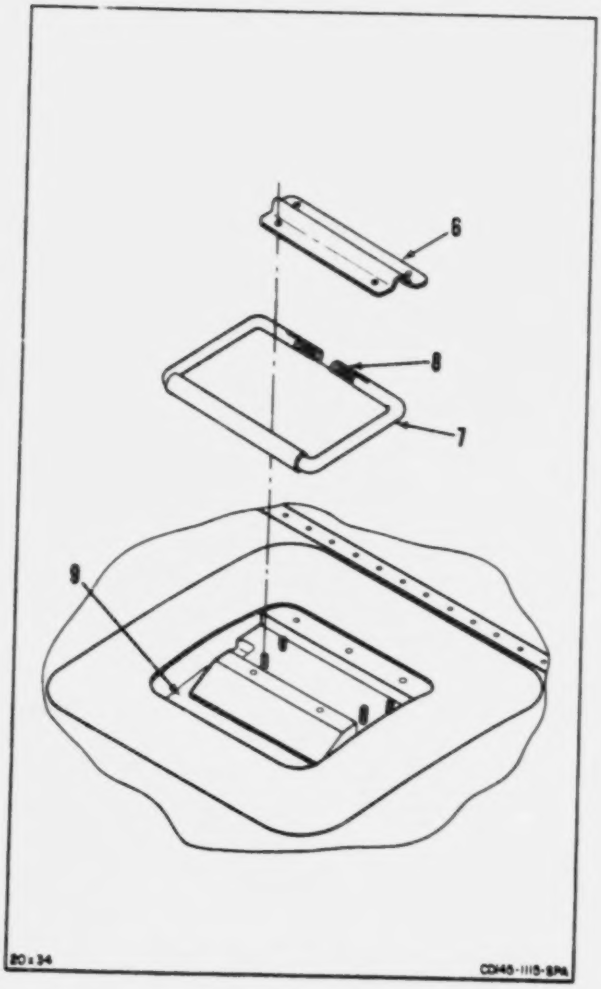
3. **Remove four nuts (3)** and washers (4) from screws (5) on retaining plate (6).


6
3
4
5
20x17
CD145 1114 SPA

4. **Remove retaining plate (6) and handle (7), with spring (8),** from pod (9).

FOLLOW-ON MAINTENANCE:

None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20x34
CD145-1115-SPA

END OF TASK

2-177 INSTALL HANDGRIP

INITIAL SETUP

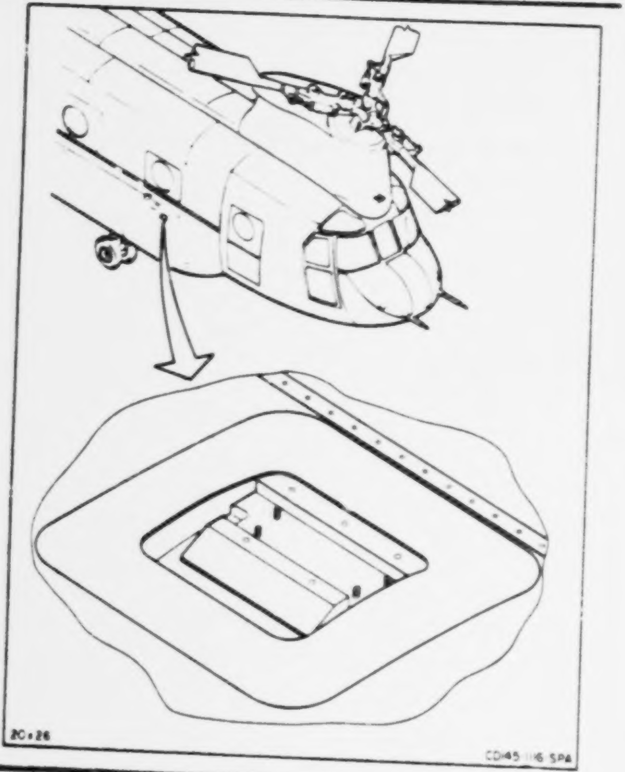
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

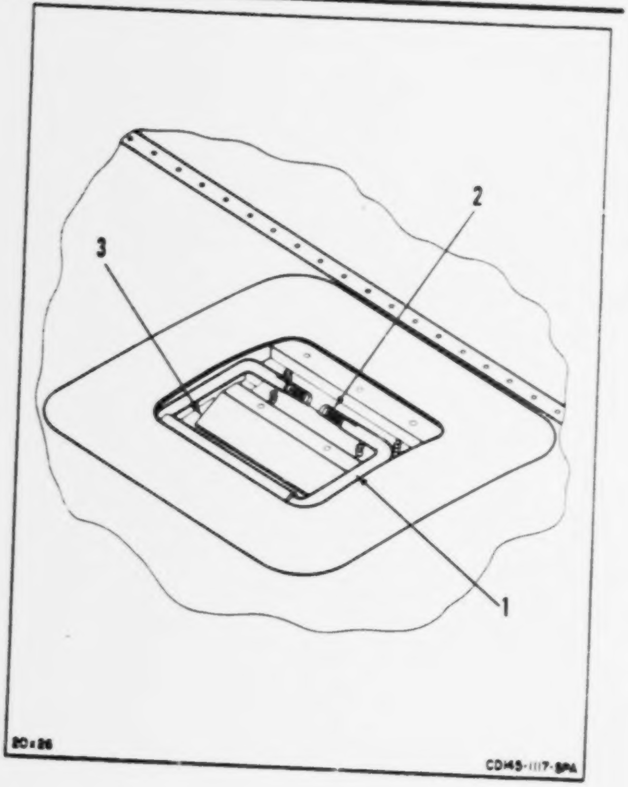
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P


2C+26
CD45-1116-SPA

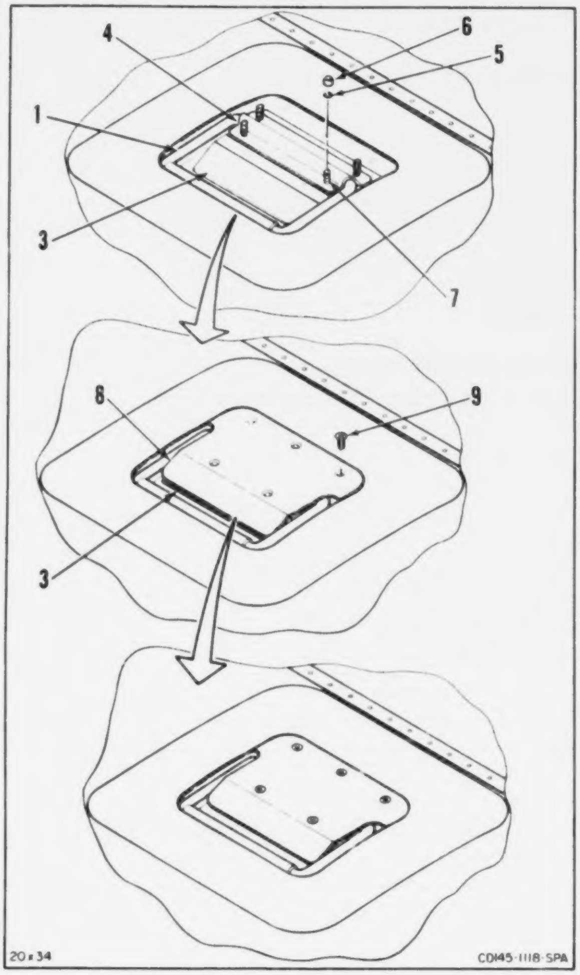
1. **Position handle (1), with spring (2),** on pod (3).


1
2
3
2C+26
CD45-1117-SPA

GO TO NEXT PAGE

2-177 INSTALL HANDGRIP (Continued) 2-177

2. **Position** retaining **plate (4) over handle (1).**
3. **Install four washers (5) and nuts (6)** on screws (7).
4. **Position cover plate (8) on pod (3).**
5. **Install five screws (9).**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20x34
CD145-1118-SPA

FOLLOW-ON-MAINTENANCE:

None

END OF TASK

2-178 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS 2-178

INITIAL SETUP

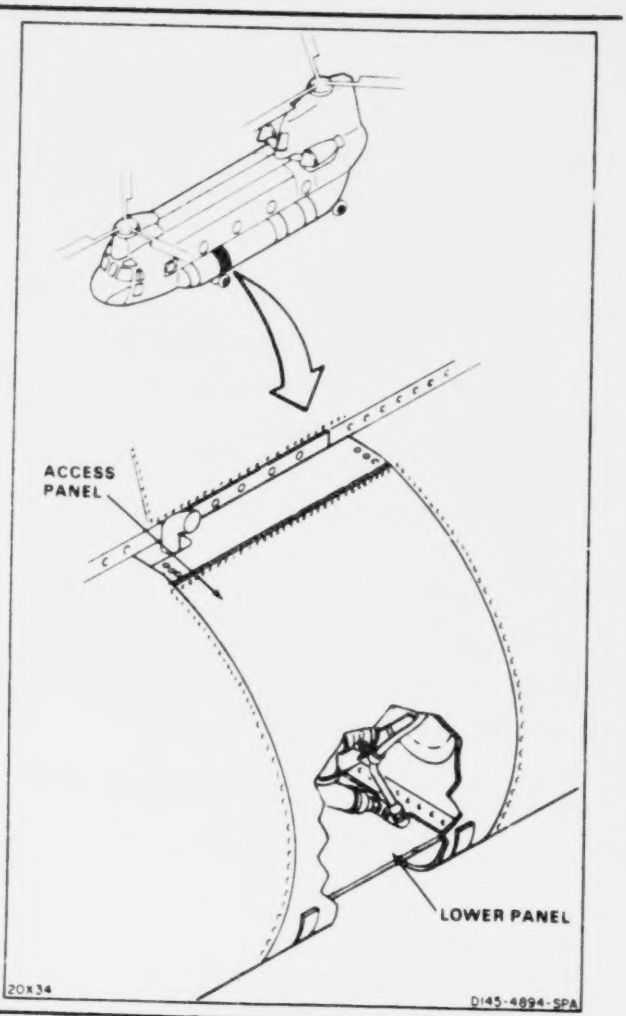
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Tape (E388)

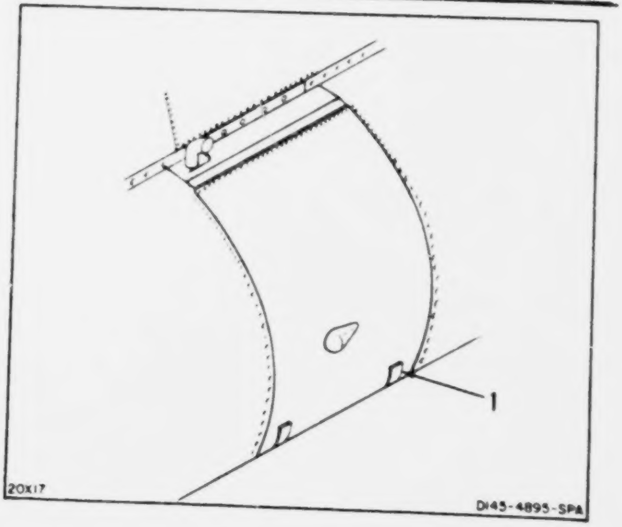
Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Left Forward Auxiliary Fuel Tank Vent Fairing Removed (Task 10-63)


ACCESS PANEL
LOWER PANEL
20X34
D145-4894-SPA

OPEN ACCESS PANEL

1. Press two latches (1) to release panel locks.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20X17
D145-4895-SPA

GO TO NEXT PAGE

2-178 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-178

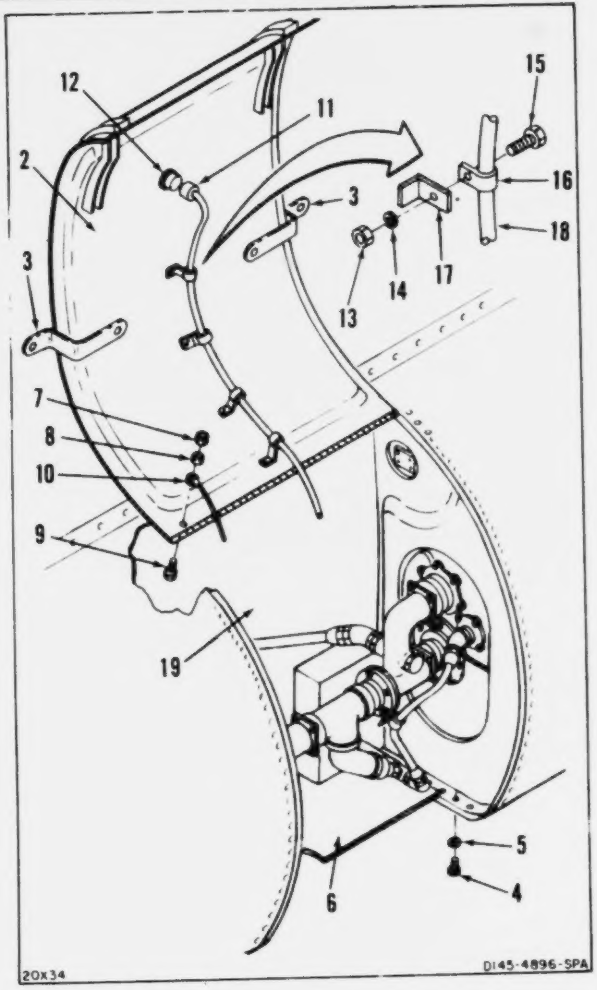
2. **Open access panel (2).** Secure in open position with two retainer straps (3).

REMOVE LOWER PANEL

3. **Remove ten screws (4)** and washers (5).
4. **Remove lower panel (6).**

REMOVE ACCESS PANEL

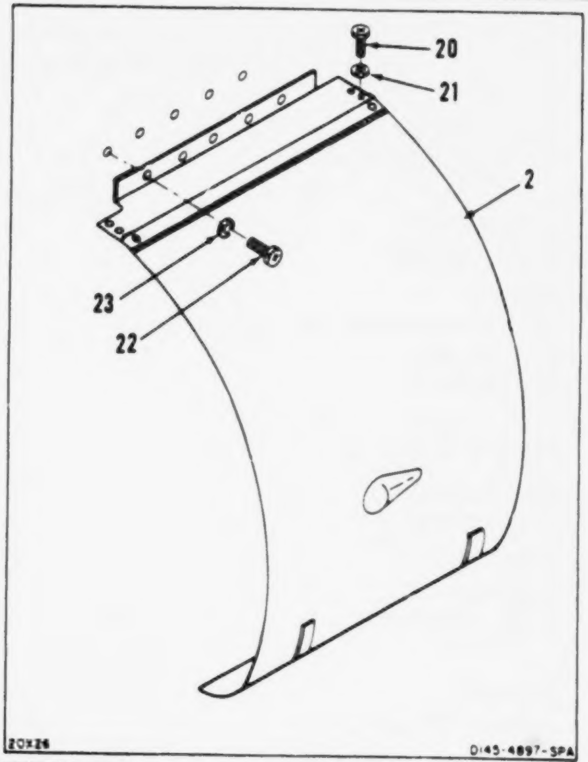
5. Release two straps (3). Have helper **support panel (2) in half-lowered position.**
6. Remove nut (7), washer (8), and screw (9). **Disconnect bonding wire (10).**
7. **Disconnect connector (11)** from position light (12).
8. **Remove four** nuts (13), washers (14), screws (15), and **clamps (16)** from brackets (17). Tape wire (18) and clamps to fuselage (19) for temporary stowage. Use tape (E388).
9. **Lower access panel (2).**



GO TO NEXT PAGE

2-178 REMOVE LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-178

10. **Remove six screws (20)** and washers (21).
11. Support panel (2). **Remove five screws (22)** and washers (23).
12. **Remove access panel (2).**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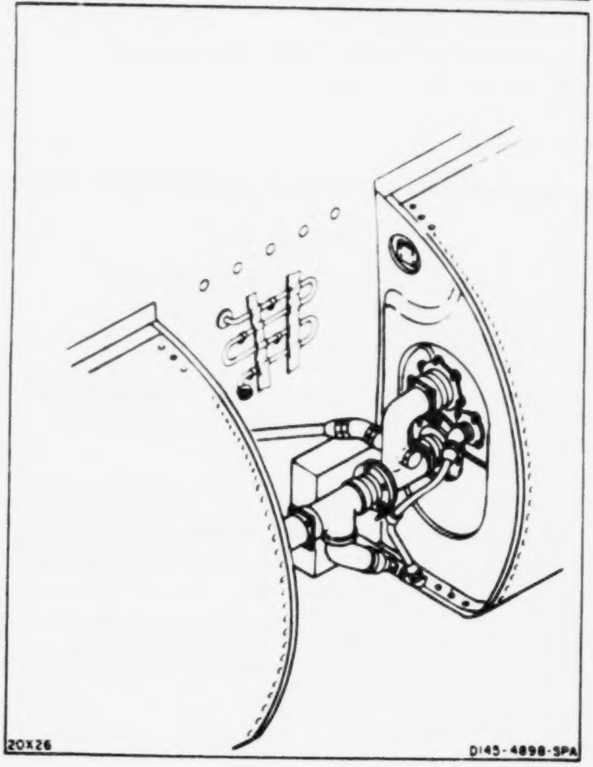
20X26
D145-4897-SPA


20X26
D145-4898-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-178.1 PREPARE FORWARD LANDING GEAR ACCESS PANELS FOR INSTALLATION 2-178.1

INITIAL SETUP

Applicable Configurations:
All

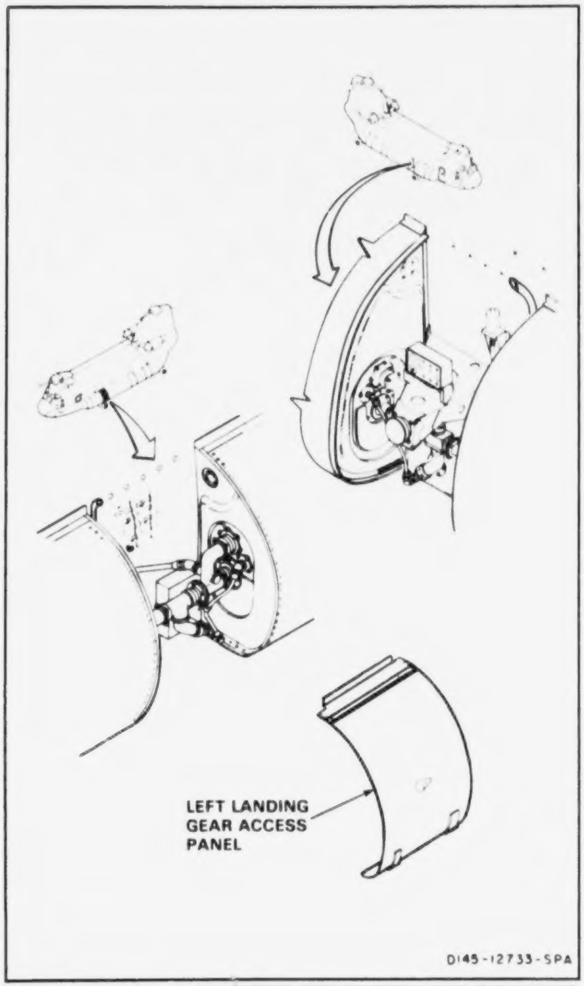
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Drill, Size 3
Drill, Size F
Sander, Portable

Materials:
Zinc Chromate Primer (E291)
Gloves (E186)
Tape (E383.1)
Dry Cleaning Solvent (E161) or Aliphatic Naphtha (E245)

Personnel Required:
Aircraft Structural Repairer (2)
Inspector

References:
TM 55-1520-240-23P
Task 2-179
Task 2-181

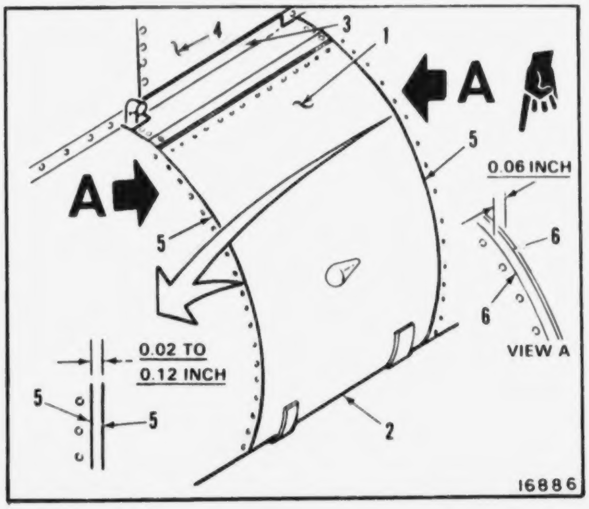
Equipment Condition:
Left Forward Landing Gear Access Panel Removed (Task 2-178)
Right Forward Landing Gear Access Panel Removed (Task 2-180)



NOTE

Procedure is same to prepare left or right forward landing gear access panel. Left panel is shown here.

1. **Position panel (1)** in center of panel opening (2), with support angle (3) against fuselage (4).
2. **Mark and trim panel (1)** to fit opening (2). **Gap between mating edges (5) must be 0.02 to 0.12 inch.** Use portable sander to trim panel.
3. After trimming panel (1), **check gap between mating surfaces (6).** Gap must not be more than 0.06 inch.



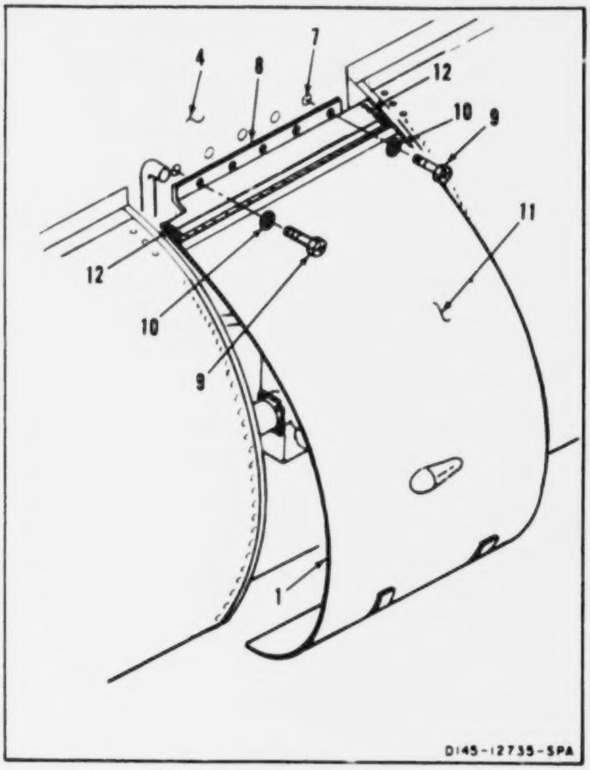
INSPECT

GO TO NEXT PAGE

2-178.1 PREPARE FORWARD LANDING GEAR ACCESS PANELS FOR INSTALLATION (Continued) 2-178.1

DRILL PANEL

4. Have helper hold panel (1) in mounting position. Working from inside aircraft, **mark five bolt holes (7)** on support angle (8). Use holes in fuselage (4) as guide.
5. Remove panel (1). **Drill five holes (7)** in angle (8). Deburr holes. **Use drill size F.**
6. Position panel (1) for mounting. **Install two bolts (9) and washers (10)** in end holes of angle (8).
7. Raise lower half (11) of panel (1). **Mark six holes (12).**
8. Remove two bolts (9), washers (10), and panel (1). **Drill six holes (12).** Deburr holes. **Use drill size 3.**



INSPECT

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

9. **Apply primer (E291)** to drilled holes (7 and 12). Wear gloves (E186).

GO TO NEXT PAGE

2-178.1 PREPARE FORWARD LANDING GEAR ACCESS PANELS FOR INSTALLATION (Continued) 2-178.1

TAPE PANEL

10. **Clean edges (5)** of panel (1), inside and outside, for 1 inch inboard of edge. Use solvent (E161) or aliphatic naphtha (E245) and clean cloths (E120). Wipe dry with a dry cloth.

NOTE

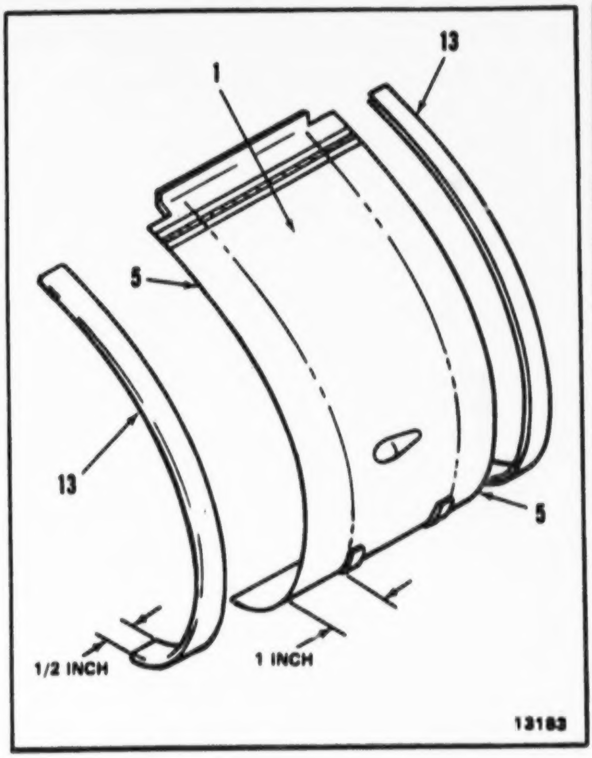
Apply tape only when air and surface temperature are above 60°F (28°C). Tape will not stick below that temperature.

11. Remove liner material from tape (E383.1) (13). **Apply tape to edge (5)** of panel (1). Use finger pressure. Do not stretch tape.

NOTE

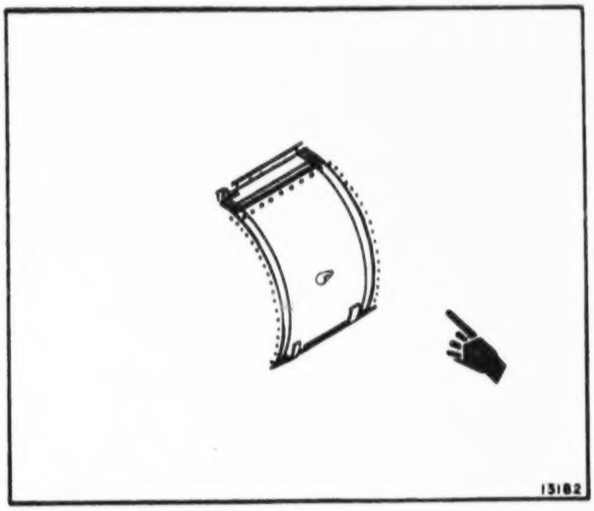
A short period of exposure may be needed before maximum tape adhesion is obtained.

12. Cut or trim tape as required.



FOLLOW-ON MAINTENANCE:

Install access panel (Task 2-179 or 2-181).



END OF TASK

2-179 INSTALL LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS 2-179

INITIAL SETUP

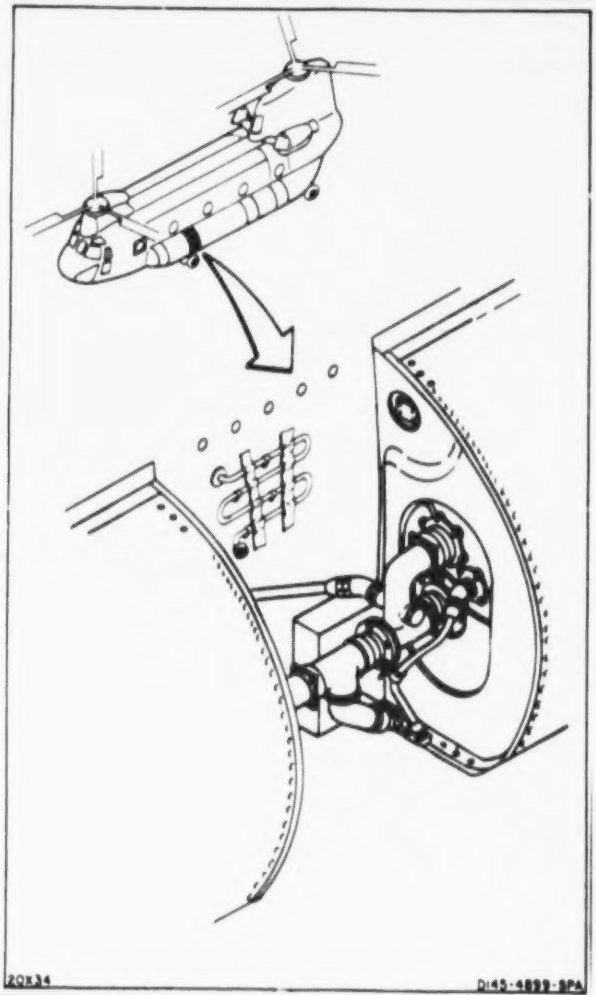
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

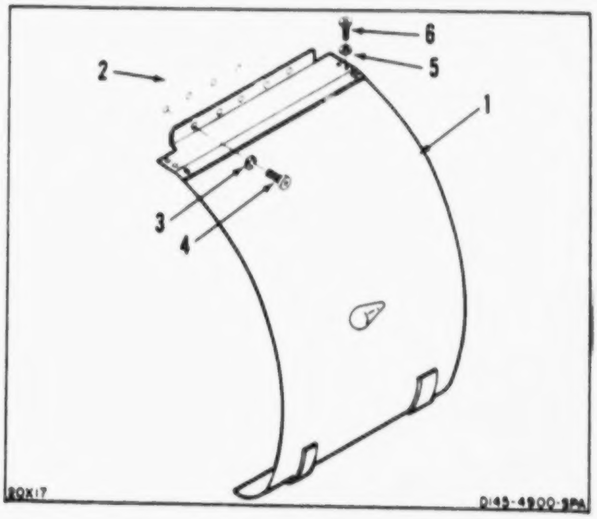
Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P



INSTALL ACCESS PANEL

1. **Position access panel (1)** against fuselage (2).
2. **Install five** washers (3) and **screws (4).**
3. **Install six** washers (5) and **screws (6).**



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2-179 INSTALL LEFT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-179

4 **Raise access panel (1) to half open position.** Have helper support panel.

5 Remove masking tape from wire (7), clamps (8), and fuselage (9). **Position four clamps** on brackets (10). **Install four screws (11),** washers (12), and nuts (13).

6 **Connect connector (14)** to position light (15).

7. **Position bonding wire (16). Install screw (17),** washer (18), and nut (19).

8 Raise access panel (1). **Latch panel in open position** with two straps (20).

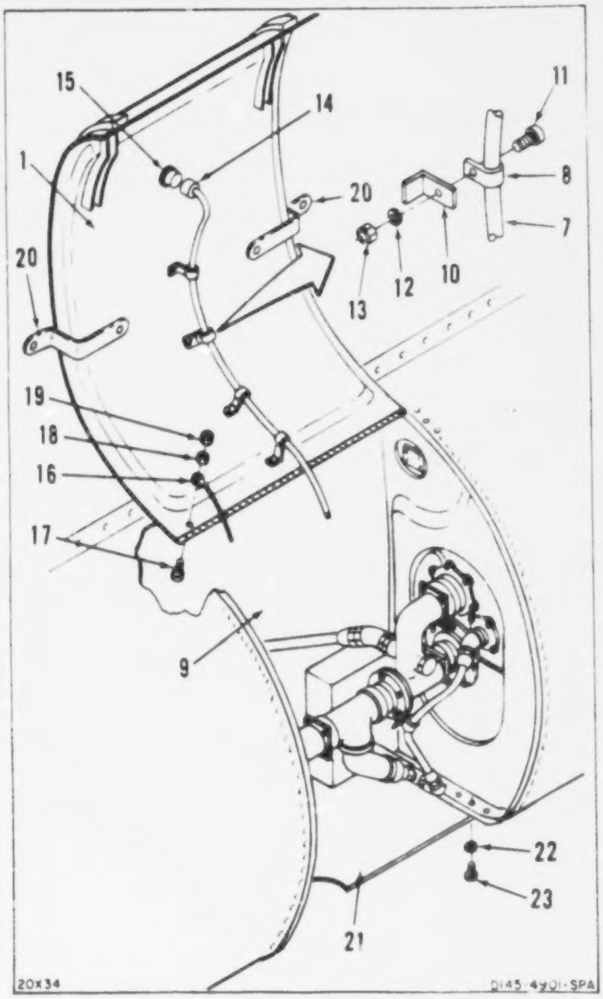
INSTALL LOWER PANEL

9 **Position lower panel (21).**

10 **Install ten** washers (22) and **screws (23).**

INSPECT

11. Release retainer straps (20). **Lower and latch panel (1)** to secure.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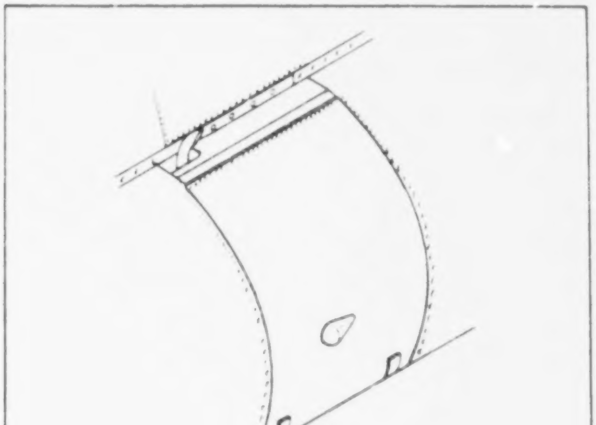
20X34
D145-4901-SPA

FOLLOW-ON MAINTENANCE:

Install fuel tank fairing (Task 10-64).


20X17
D145-4902-SPA

END OF TASK

2-180 REMOVE RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS 2-180

INITIAL SETUP

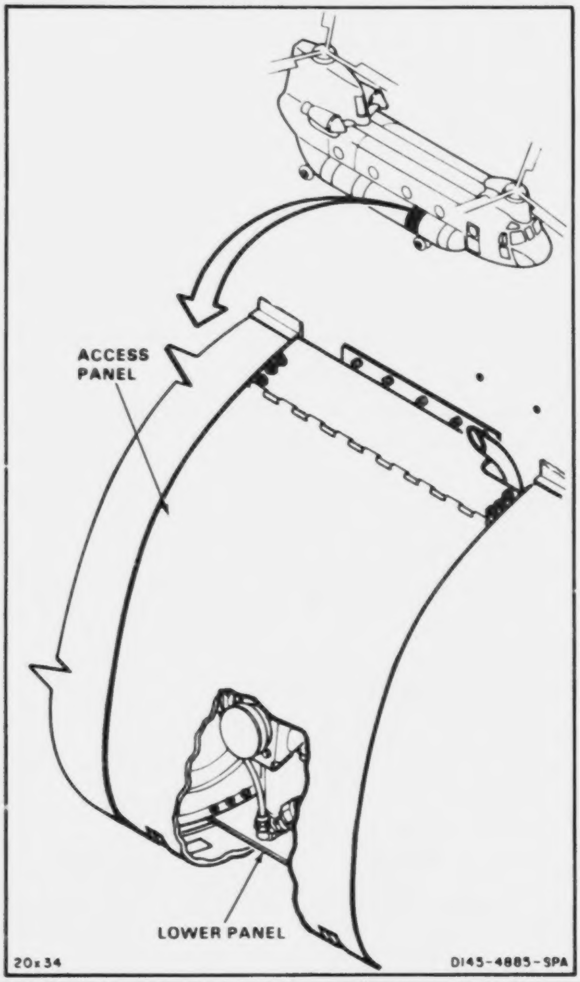
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Tape (E388)

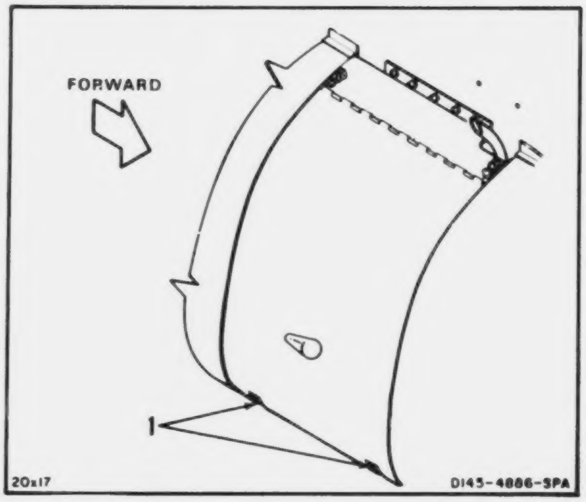
Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Right Forward Auxiliary Fuel Tank Vent Fairing Removed (Task 10-63)


ACCESS PANEL
LOWER PANEL
20x34
D145-4885-SPA

OPEN ACCESS PANEL

1. Press two latches (1) to release panel locks.


FORWARD
1
20x17
D145-4886-SPA

GO TO NEXT PAGE

2-180 REMOVE RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-180

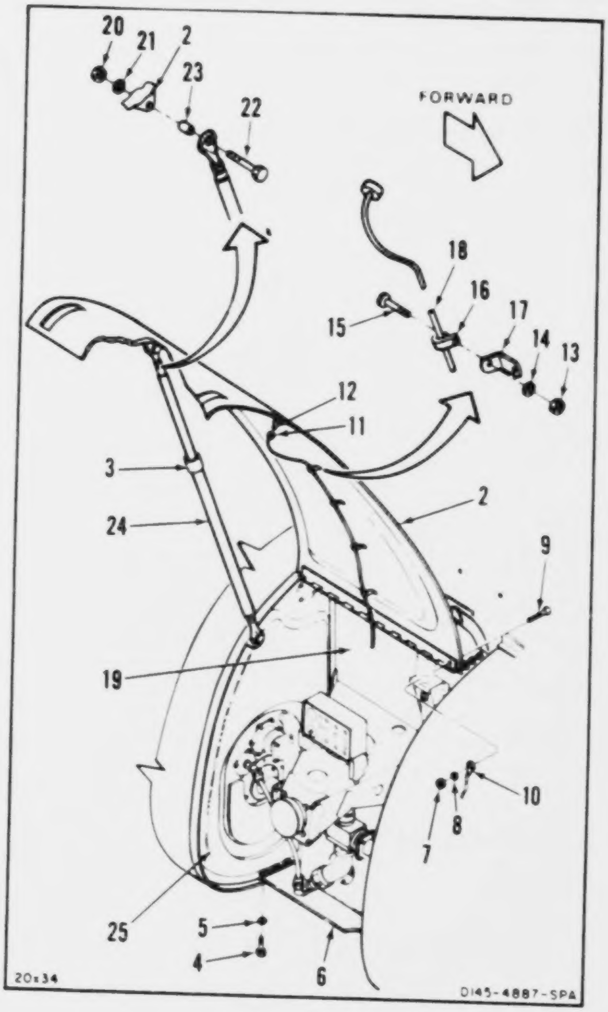
2. **Open access panel (2)** and support in half open position. Tighten locking collar (3).

REMOVE LOWER PANEL

3. **Remove ten screws (4)** and washers (5).
4. **Remove lower panel (6).**

REMOVE ACCESS PANEL

5. Remove nut (7), washer (8), and screw (9). **Disconnect bonding wire (10).**
6. **Disconnect connector (11)** from position light (12).
7. **Remove** four nuts (13), washers (14), screws (15), and **cable clamps (16)** from brackets (17). Tape wire (18) and clamps (16) to fuselage (19) for temporary stowage. Use tape (E388).
8. Have helper support panel (2). **Remove** nut (20), washer (21), **bolt (22) and spacer (23)** from panel (2).
9. Loosen collar (3). **Retract strut (24),** tighten collar. Tape strut to tank (25) for temporary stowage. Use tape (E388).
10. **Lower panel (2).**



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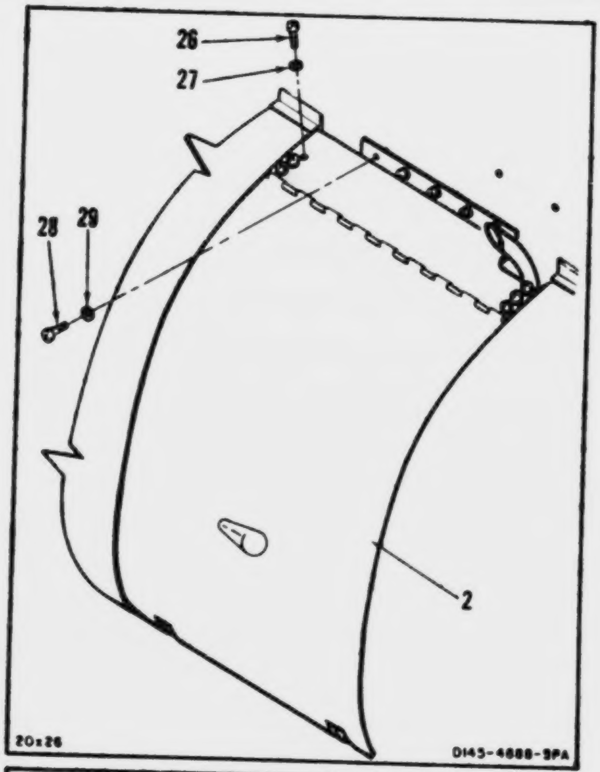
2-180 REMOVE RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-180

11. **Remove six screws (26)** and washers (27).
12. Support panel (2). **Remove five screws (28)** and washers (29).
13. **Remove access panel (2).**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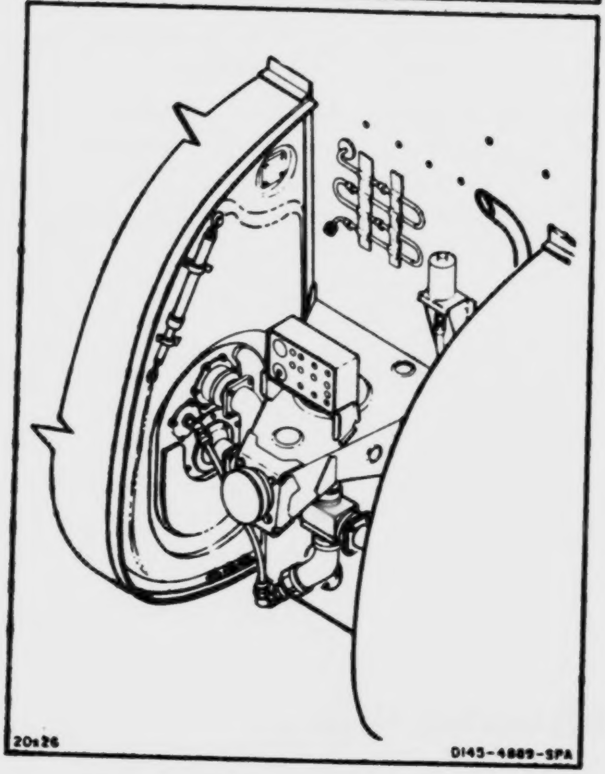
D145-4888-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
D145-4889-SPA

END OF TASK

2-181 INSTALL RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS 2-181

INITIAL SETUP

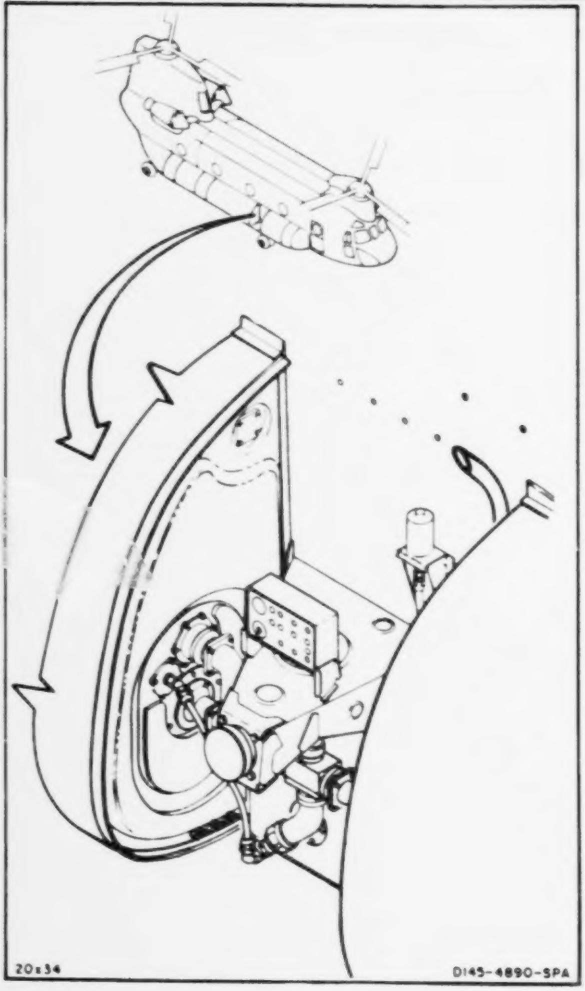
Applicable Configurations:
All

Tools
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



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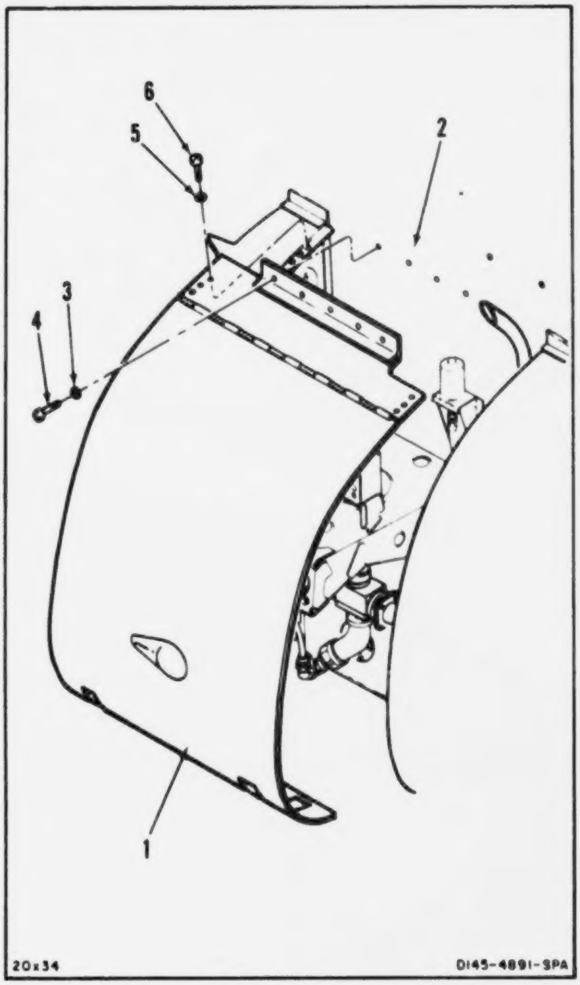
2-181 INSTALL RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-181

INSTALL ACCESS PANEL

1. **Position access panel (1)** against fuselage (2).
2. **Install five** washers (3) and **screws (4).**
3. **Install six** washers (5) and **screws (6).**



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2-181 INSTALL RIGHT SIDE FORWARD LANDING GEAR ACCESS PANELS (Continued) 2-181

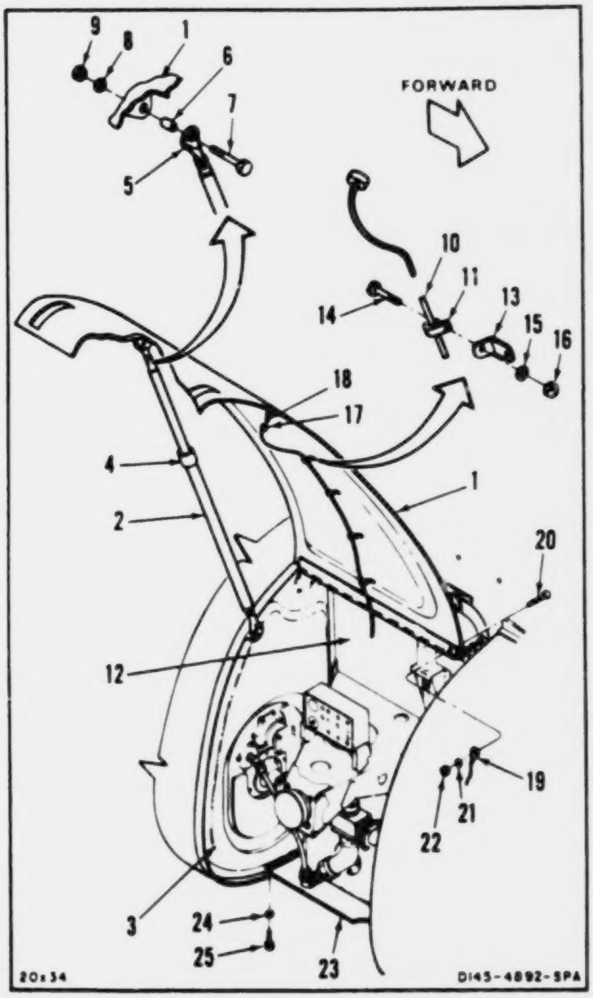
4. **Raise access panel (1).**
5. Remove masking tape from strut assembly (2) and tank (3). Loosen collar (4). Extend strut about 7 inches. Tighten collar.
6. Support panel (1). **Position rod end (5) and spacer (6). Install bolt (7),** washer (8), and nut (9) on panel (1).
7. Remove masking tape from wire (10), clamps (11), and fuselage (12). **Position four clamps** on brackets (13). **Install four screws (14),** washers (15), and nuts (16).
8. **Connect connector (17)** to position light (18).
9. **Position electrical lead (19). Install screw (20),** washer (21), and nut (22).

INSTALL LOWER PANEL

10. **Position lower panel (23).**
11. **Install ten** washers (24) and **screws (25).**

INSPECT

12. Loosen collar (4). Lower and **latch panel (1).**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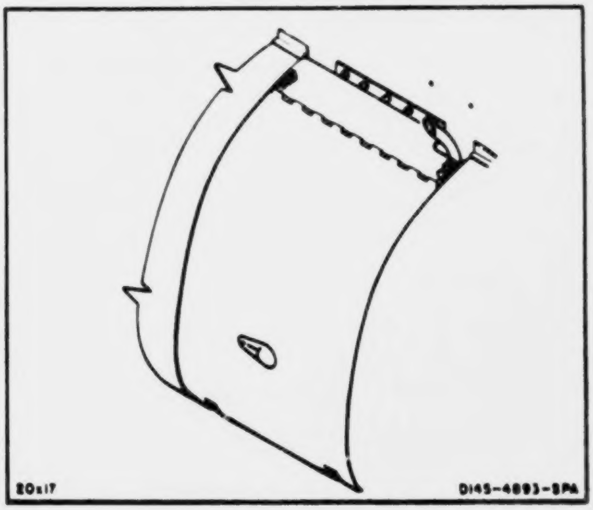

20x17
D145-4893-SPA

FOLLOW-ON MAINTENANCE:

Install fuel tank fairing (Task 10-64).

END OF TASK

2-182 INSPECT FUEL PODS 2-182

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit,
NSN 5180-00-323-4114

Materials:

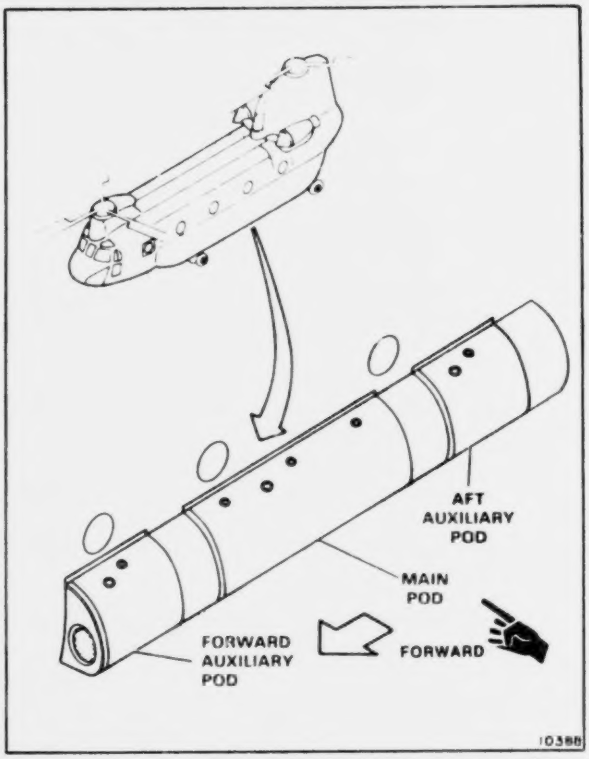
None

Personnel Required:

Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)


AFT AUXILIARY POD
MAIN POD
FORWARD AUXILIARY POD
FORWARD
10388

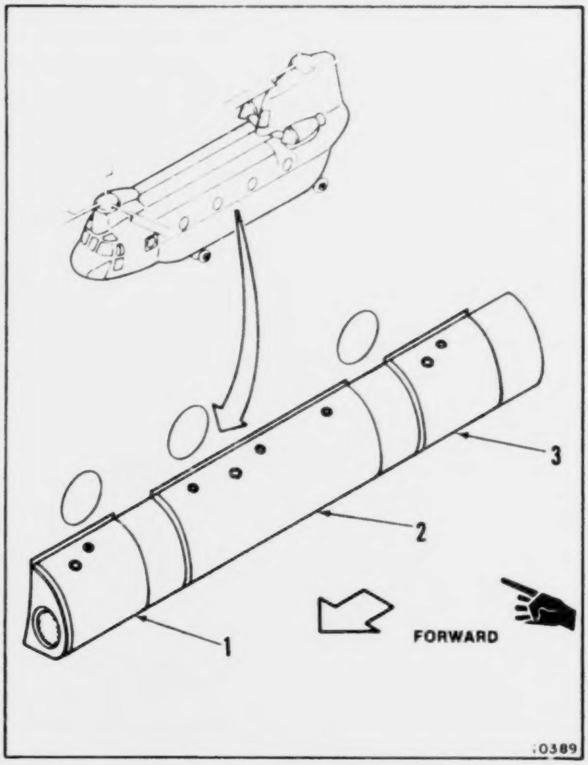
1. **Inspect forward auxiliary tank (1), main tank (2), and aft auxiliary tank (3) on each side** for dents and other damages as follows:

   a. A dent must not be more than 50 square inches.

   b. The dents in any one panel must not be more than 200 square inches.

   c. There shall be no more than two dents in a 40-inch length of panel.

   d. Dents must not contain fractures or punctures.


3
2
1
FORWARD
10389

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-182.1 INSPECT COMPOSITE FUEL PODS 2-182.1

INITIAL SETUP

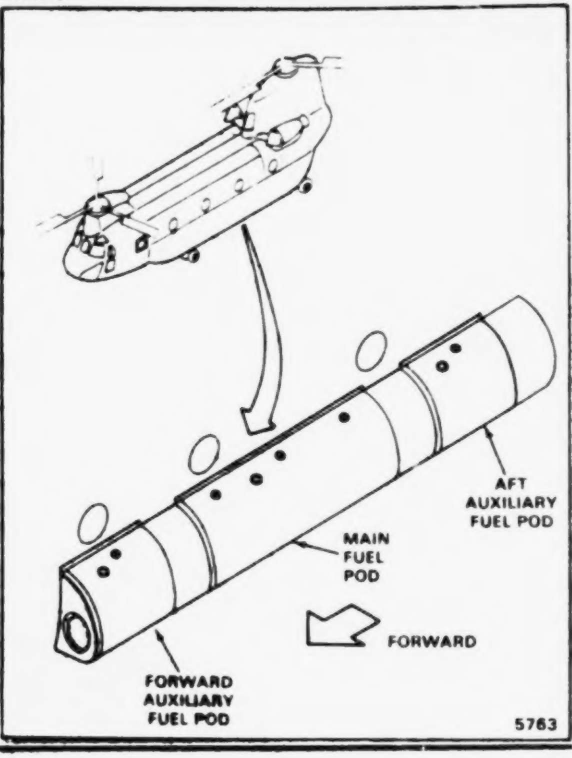
Applicable Configurations:
Helicopters with Composite Fuel Pods

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Inspector

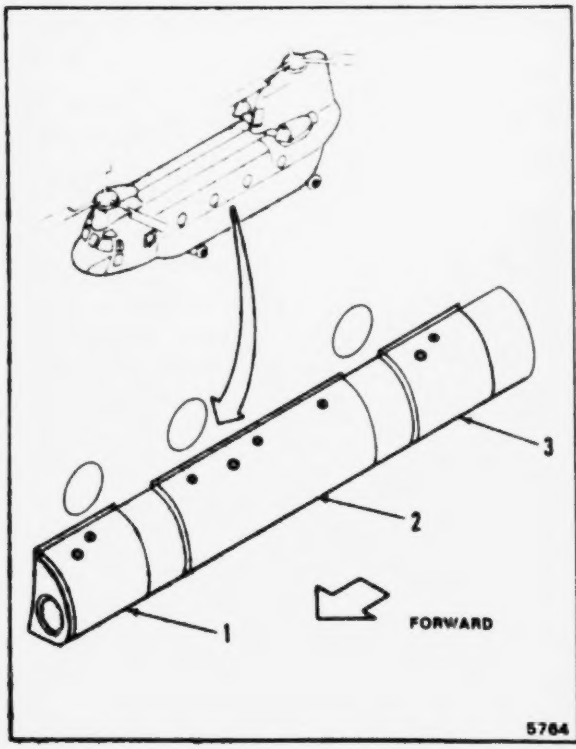
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Helicopter Grounded (Task 1-29)


AFT AUXILIARY FUEL POD
MAIN FUEL POD
FORWARD
FORWARD AUXILIARY FUEL POD
5763

1. **Inspect forward auxiliary pod (1),** main pod (2), and aft auxiliary pod (3) on each side of helicopter for damage that penetrates the skin.
   a. Auxiliary pods (1) and (3): Damage that covers 500 square inches or less is reparable. More than 500 square inches is cause for replacement.
   b. Check for surface damage such as abrasions, cracks, or dents. All surface damage is reparable.

FOLLOW-ON MAINTENANCE:

Repair composite pod as required. (Tasks 2-187.1 through 2-187.7)


3
2
1
FORWARD
5764

END OF TASK

2-183 REPAIR FUEL PODS — GENERAL INFORMATION 2-183

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-184
Task 2-186
Task 2-187

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. There are three pods along the lower part of each side of the fuselage. On each side, there is one large center pod, one small forward pod and one small aft pod. The large pods contain the main fuel tanks. The smaller pods contain the forward and aft auxiliary fuel tanks.
2. Some helicopters have pods made of an aluminum honeycomb core sandwiched between skins of aluminum or figerglass. Repairs to these pods are classified as minor repairs (Task 2-184), major repairs (Task 2-186), and repairs requiring replacement (Task 2-187).
3. Some helicopters have composite pods made of Nomex honeycomb core sandwiched between fiberglass skins. Refer to tasks 2-187.1 thru 2-187.7 for repairs.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-184 REPAIR PODS — MINOR DAMAGE 2-184

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-12

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Minor repairs are limited to damage to skin or end ribs that does not exceed 10 percent of skin thickness.
2. Repair damage by burnishing (Task 2-12).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-185 REMOVE FUEL POD PANELS

INITIAL SETUP

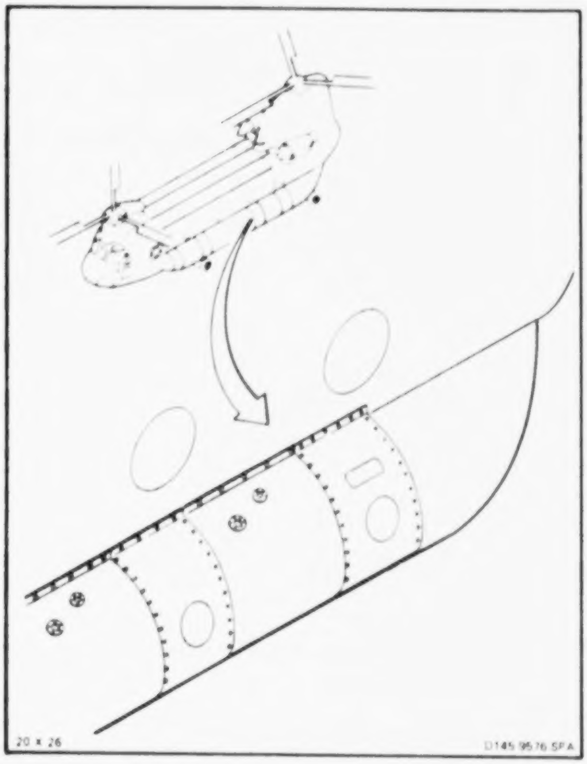
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Penetrating Lubricant (E236)

Personnel Required:
67U10 Medium Helicopter Repairer (2)

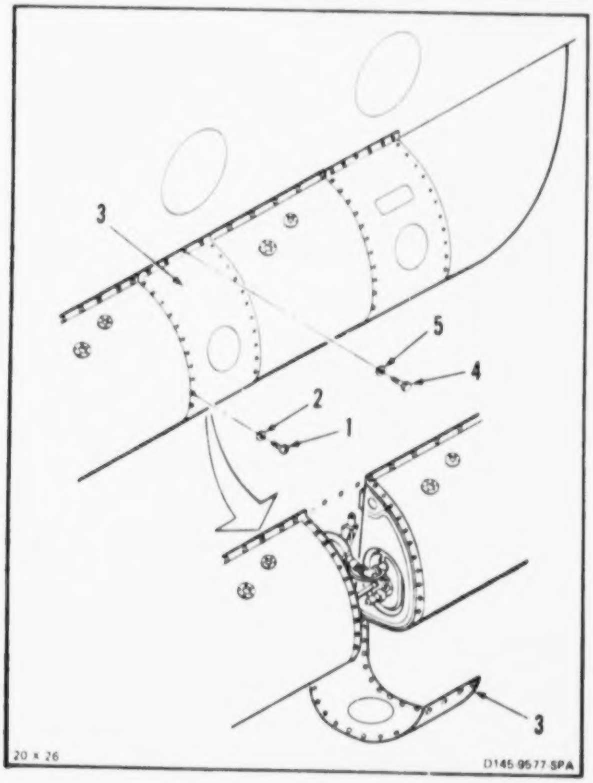
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

Procedure is same to remove left or right fuel pod panels. Left fuel pod panels shown here.

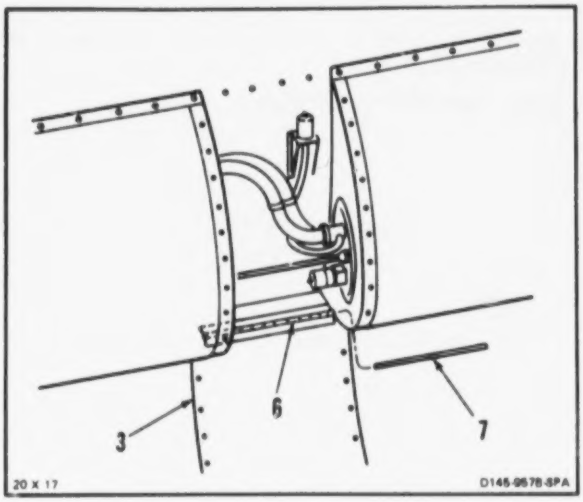
1. **Remove 35 screws (1)** and washers (2) from fuel pod panel (3).
2. **Have helper support panel (3).**
3. **Remove four bolts (4)** and washers (5). **Lower panel (3).**



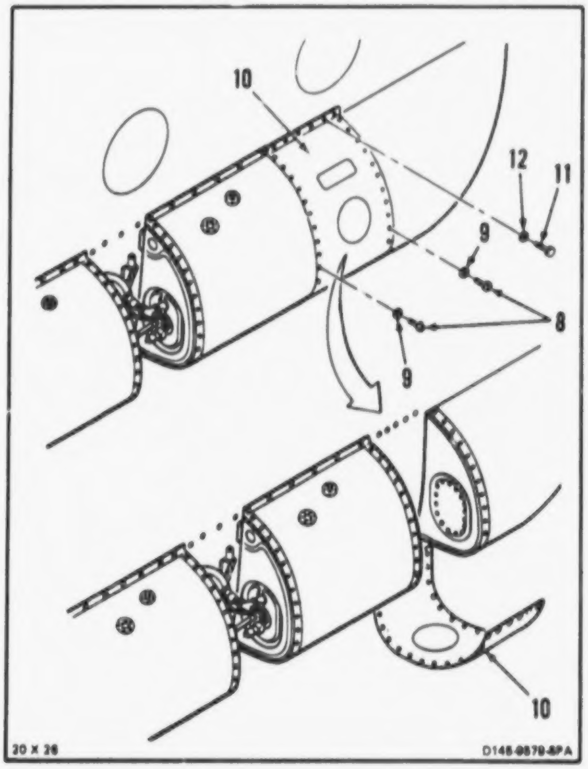
GO TO NEXT PAGE

2-185 REMOVE FUEL POD PANELS (Continued) 2-185

4. **Spray hinge (6)** on panel (3). Use penetrating lubricant (E236).
5. Remove lockwire. **Remove hinge pin (7).**
6. **Remove panel (3).**

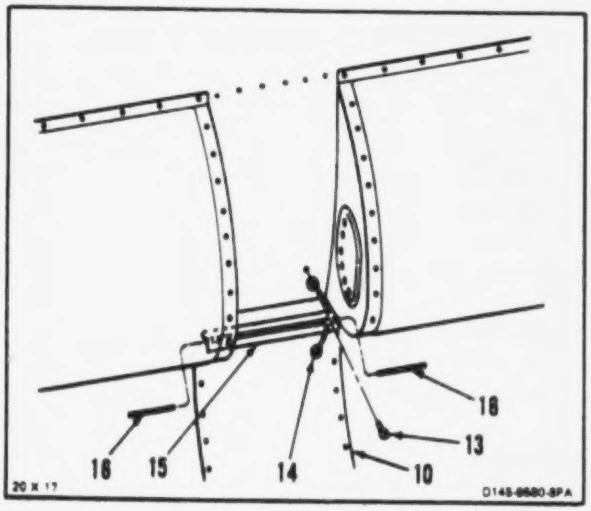

3
6
7
20 X 17
D145-9578-SPA

7. **Remove 35 screws (8)** and washers (9) from fuel pod panel (10).
8. **Have helper support panel (10).**
9. **Remove six bolts (11)** and washers (12). **Lower panel (10).**


10
12
11
9
8
9
10
20 X 26
D145-9579-SPA

GO TO NEXT PAGE

10. **Remove screw (13)** and bonding jumper (14).
11. **Spray hinge (15)** on panel (10). Use penetrating lubricant (E236).
12. Remove lockwire. **Remove two hinge pins (16).**
13. **Remove panel (10).**


16
13
16
15
14
10
20 X 17
D145-9580-8PA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-185.1 PREPARE LEFT OR RIGHT FUEL POD PANELS FOR INSTALLATION 2-185.1

INITIAL SETUP

Applicable Configurations:
All

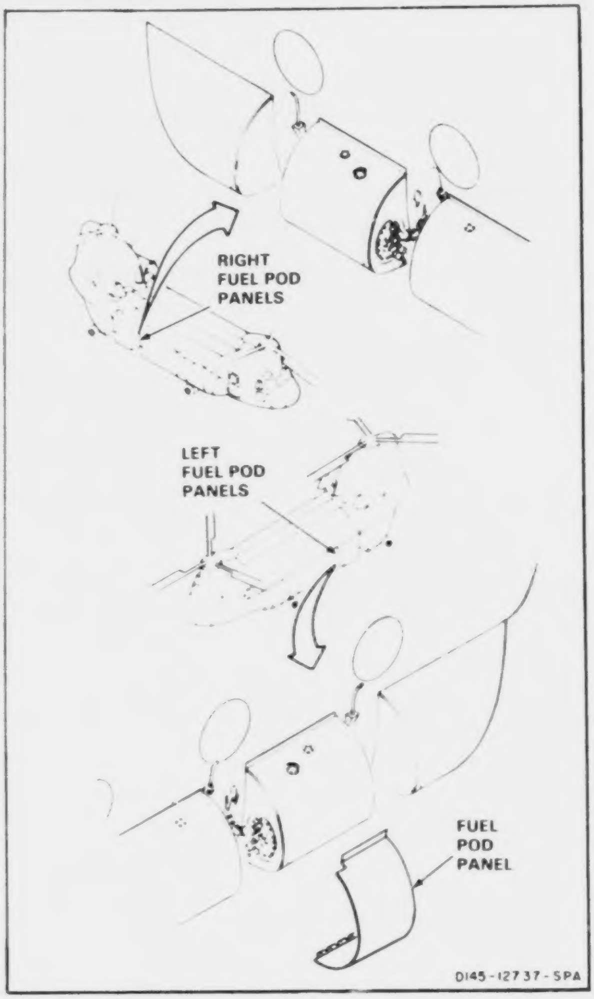
Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Drill Size F
Drill Size 3
Sander, Portable

Materials:
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P
Task 2-188

Equipment Condition:
Left or Right Fuel Pod Panel Removed (Task 2-185)


RIGHT FUEL POD PANELS
LEFT FUEL POD PANELS
FUEL POD PANEL
D145-12737-SPA

NOTE

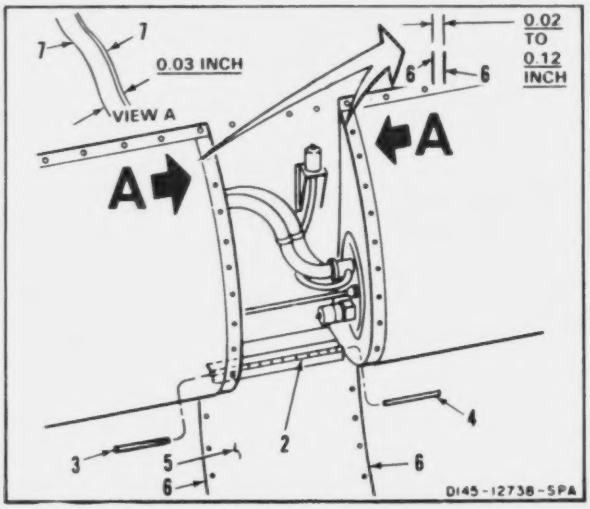
Procedure is same to prepare left or right fuel pod panels. Left forward fuel pod panel is shown here.

1. Align fuselage hinge half (1) with panel hinge half (2). **Install two hinge pins (3 and 4).**

CAUTION

Do not force panel to fully closed position. Damage to panel can occur.

2. Partly close panel (5). **Mark and trim panel to fit flush with mating edges (6). Gap between mating edges must be 0.02 to 0.12 inch.** Use portable sander to trim panel.

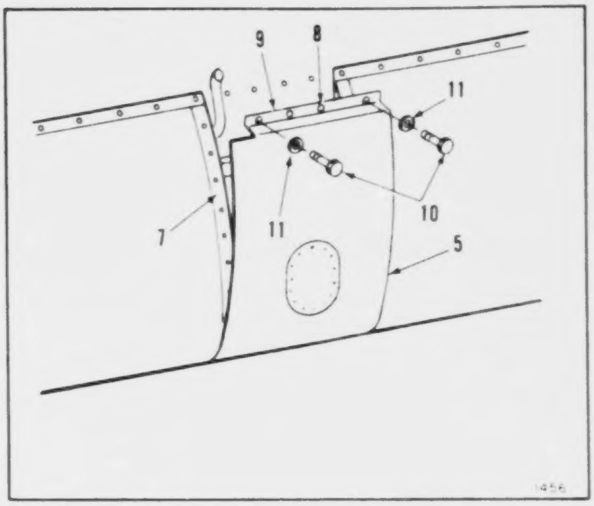

7
7
0.03 INCH
VIEW A
0.02 TO 0.12 INCH
6
6
A
A
2
3
4
5
6
6
D145-12738-SPA

2-185.1 PREPARE LEFT OR RIGHT FUEL POD PANELS FOR INSTALLATION (Continued) 2-185.1

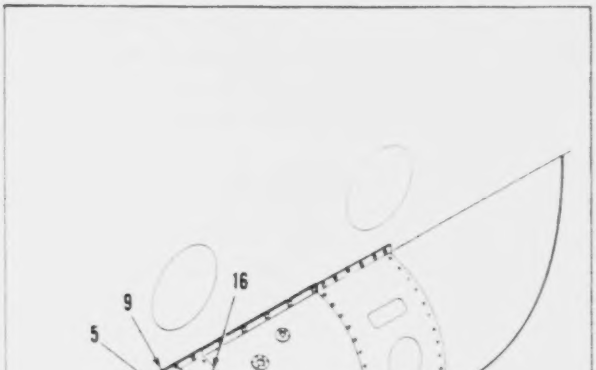
3. After trimming panel (5), **check gap between mating surfaces (7). Gap must not be more than 0.03 inch.**

INSPECT

4. Have helper hold panel (5) fully closed. Working from inside aircraft, **mark four bolt holes (8)** on support angle (9). Use holes in fuselage as guide.
5. **Drill four holes (8) in angle (9).** Deburr holes. **Use drill size F.** Use wood block to support angle.
6. Close panel (5) and **install two bolts (10) and washers (11)** in end holes of angle (9).



7. Remove 13 screws (12) and washers (13) from door (14). **Remove door.**
8. Working through access (15), **mark 70 screw holes (16) on panel (5).**
9. **Remove two bolts (10) and washers (11)** from angle (9).
10. **Remove two hinge pins (3 and 4).** Remove panel (5).
11. **Drill 70 holes (16) in panel (5).** Deburr holes. **Use drill size 3.**



INSPECT

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

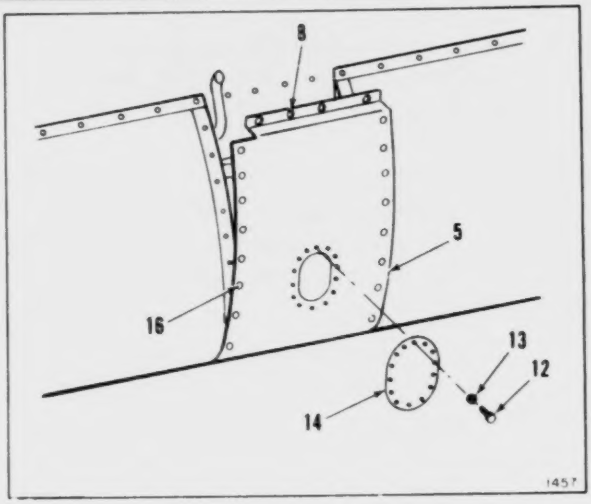
GO TO NEXT PAGE

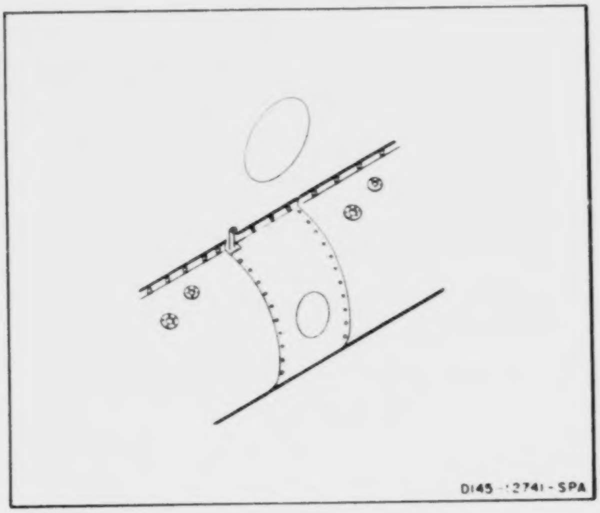
2-185.1 PREPARE LEFT OR RIGHT FUEL POD PANELS FOR INSTALLATION (Continued) 2-185.1

12. **Apply primer (E291)** to drilled holes (8 and 16). Wear gloves (E186).
13. Position door (14) on panel (5). **Install 13 screws (12) and washers (13).**

INSPECT

14. **Perform Task 2-188.**





FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-186 REPAIR PODS—MAJOR DAMAGE (AVIM) 2-186

INITIAL SETUP

Applicable Configurations:

Without 4

Tools:

Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Craig Counterbore 850-20
SLT 600T9 Mask Support
SLT 600G9 Guide Tool
Router
Vacuum Source
Spatula

Materials:

Abrasive Paper (E8), (E9), AND (E13)
Acetone (E20)
Cloth (E120)
Core (E149)
Adhesive (E27) or
Adhesive (E40) or (E41)
Sealant Tape (E396)
Teflon-Impregnated Fabric (E170)
Glass Cloth (E132)
Polyvinyl Sheet (E284)
Masking Tape (E388)
Sealant (E336)
Primer (E291)
Gloves (E186)

Parts:

Aluminum Alloy
 Sheet-
  0.012-Inch
  0.016-Inch
  0.032-Inch
4130 Steel
 Sheet-
  0.032-Inch
  0.060-Inch
1/8-Inch Plywood Sheet
Sheetmetal Screws
Rivets
Aluminum Tube,
  1/2-Inch Diameter
  10 Inches Long
Shur Lock Inserts

Personnel Required:

Aircraft Structural Repairer (2)
Inspector

References:

TM 55-1500-204-25/1
Task 2-13
Task 2-339
Task 2-358
Task 2-337
Task 2-351

Equipment Condition:

Off Helicopter Task

General Safety Instructions:

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-186 REPAIR PODS—MAJOR DAMAGE (AVIM) (Continued) 2-186

PATCH SKIN PANELS

NOTE

Pod sections having repair areas greater than 20 inches must be replaced.

1. Patch skin panels having damage that does not exceed 25 percent of skin area between boundary members. Repairs must be clear of boundary members (Task 2-13) (TM 55-1500-204-25/1).
2. Skin panels having damage that exceeds 25 percent of skin area or which interferes with structural boundary members must be replaced (Task 2-13) (TM 55-1500-204-25/1).

REPAIR CORE VOIDS OR DELAMINATIONS

3. Repair voids or delaminations in honeycomb structures that are greater than 4.0 square inches.
4. Prepare damage-area surface as follows:
   - a. Sand surface. Use abrasive paper (E13).
   - b. Wipe surface clean. Use cloth (E120) damp with acetone (E20). Wear gloves (E186).
   - c. Wipe surface dry. Use cloth (E104). Wipe until cloth does not pick up color.
5. Remove damaged material as follows:
   - a. Draw outline around damage area. Keep corners to minimum radius of 2 inches.
   - b. Set router bit to leave at least 0.05-inch of core on lower skin.
   - c. Make template to match damage outline. Use 1/8-inch plywood. Secure template to skin over damage. Use sheetmetal screws.
   - d. Cut outline around damage area.
   - e. Remove cutout skin. Use pliers.
   - f. Remove remaining core. Use pocket knife.
   - g. Sand remaining skin. Use abrasive paper (E9).
   - h. Remove debris from repair area. Use vacuum source.
6. Prepare repair materials as follows:
   - a. Cut piece of core material (E149) to fit cutout.
   - b. Cut insert, from same material as skin removed, to fit cutout.
   - c. Cut patch, from same material as skin removed, 1 inch larger than cutout.
   - d. Abrade both sides of insert and inside of patch. Abrade area 1 inch wide around cutout. Use abrasive paper (E8).

CAUTION

Do not soak abraded areas. Repair can be contaminated.

   - e. Clean insert, patch, and abraded area around cutout. Use cloth (E120) damp with acetone (E20). Wear gloves (E186).
7. Mix adhesive (E27), (E40) or (E41). Follow manufacturer's instructions.
8. Apply adhesive (E27), (E40) or (E41) to skin in cutout and core mating surfaces. Wear gloves (E186).
9. Position core in cutout.
10. Coat skin insert on one side. Use adhesive (E27), (E40) or (E41).
11. Position insert with adhesive against core.
12. Apply adhesive (E27), (E40) or (E41) to insert and cleaned area around insert.

GO TO NEXT PAGE

13. Position skin patch on repair area.
14. Vacuum-bag repair area as follows:
    a. Apply border of sealant tape (E396), 2 inches outside of repair area.
    b. Cover patch. Use teflon-impregnated fabric (E170).
    c. Cover teflon-impregnated fabric. Use glass cloth (E132).
    d. Wrap end of 0.5 inch aluminum tube. Use 2 layers of glass cloth (E132) and masking tape (E388).
    e. Wrap band of sealant tape (E396) around tube 2 inches from end of tube.
    f. Press sealant tape band on tube into sealant tape border.
    g. Press polyvinyl sheet (E284) into sealant tape border.
    h. Connect tube from vacuum source to aluminum tube.
    i. Apply vacuum of 24 inches of Hg to repair less than 1 square foot. Apply vacuum of 29 inches of Hg to repair larger than 1 square foot.
15. Cure repair, with vacuum applied for 12 hours at 70°F (21°C).
16. Remove vacuum source.
17. Remove polyvinyl sheet, teflon-impregnated fabric, tube, and sealant tape.
18. Check repair for voids. Use coin-tap method.
19. Fill voids in overlap areas, or voids over 2 square inches as follows:
    a. Drill 0.040 inch holes in void area.
    b. Inject adhesive (E40) or (E41) into holes.

INSPECT

20. Replace pod sections when skin damage in honeycomb section area exceeds 100 square inches after trimming.
21. Replace pod sections that have cracks over 6 inches long or voids over 1200 square inches.

REPAIR SKIN AND CORE DAMAGE

NOTE

Pod sections with repair areas closer together than 20 inches must be replaced.

22. Repair damage to one or both skins and core as follows:
    a. Prepare surface. Refer to step 3.
    b. Remove damaged skin and core. Refer to step 4.
    c. Prepare repair materials as in step 5. Use aluminum alloy in an all-aluminum area. In a composite area, use composite skin for insert, 0.016 inch aluminum alloy for an external patch and 0.012 inch aluminum for internal patch. Match skin inserts in areas of aluminum alloy and composite skin areas using material replaced in each section. Patch with aluminum alloy.
    d. Mix adhesive (E27), (E40), or (E41).. Wear gloves (E186). Refer to step 6.
    e. Apply adhesive to mating surfaces of skin and core.
    f. Position core, inserts, and skin patches as shown.

NOTE

Rivets can be used to position parts for bonding in composite areas. Rivets must not interfere with contact. There shall be no voids nor moisture. Rivets are required for bonding aluminum alloy skin to provide electrical conductivity.

    g. Install rivets to position patches.

GO TO NEXT PAGE

2-186 REPAIR PODS—MAJOR DAMAGE (AVIM) (Continued) 2-186

h. Apply vacuum bag to repair area. Refer to step 14.

i. Cure repair, with vacuum applied, for 12 hours at 70°F (21°C).

j. Remove vacuum source.

k. Remove vacuum bag materials. Refer to step 16.

INSPECT

l. Install one row of rivets, at 1 inch pitch, to aluminum patches only.

REPAIR HONEYCOMB STRUCTURES AND SCOTCH PLY EDGE MEMBERS

NOTE

Pod sections with repair areas closer together than 20 inches must be replaced.

23. Repair honeycomb structures and Scotchply edge members. Refer to TM 55-1500-204-25/1 and Tasks 2-339 and 2-358.

24. Repair pod-end ribs if minimum bond width is 1.0 inch and skin patch can be riveted.

REPAIR DENTS

NOTE

Pod sections with repair areas closer together than 20 inches must be replaced.

25. Repair dents not larger than 10 square inches , nor deeper than 15 percent of panel thickness or 0.15 inch , whichever is less. Repair as follows:

NOTE

Total dent area on a pod shall not exceed 100 square inches .

a. Sand dent lightly. Use abrasive paper (E13).

b. Wipe dent clean. Use cloth (E120) damp with acetone (E20). Wear gloves (E186). Wipe until cloth is clean.

c. Flush dent. Use water. If water film breaks, repeat steps a and b.

d. Mix adhesive (E40) or (E41). Follow manufacturer instructions.

e. Apply adhesive (E40) or (E41). Use spatula.

NOTE

Working life of adhesive is 2 hours.

f. Cure adhesive 8 hours at 70F (21C).

g. Blend repair. Use abrasive paper (E13).

INSPECT

26. Replace pod sections that have dents larger than 10 square inches or deeper than 0.15 inch or 15 percent of material thickness. Total dent area in a pod section shall not exceed 100 square inches. Dents shall be at least 20 inches apart.

REPAIR DOUBLER AROUND FILLER OR TANK UNIT

27. Remove damaged material. Refer to step 4. Be sure to remove any corrosion.

28. Remove rivets.

29. Repair as follows:

    a. Cut patch of 0.016 inch aluminum alloy to match cutout skin.

    b. Cut doubler of 0.032 inch aluminum alloy to match doubler around filler neck and extend 2 inches beyond patch to step a.

    c. Cut doubler to match original doubler around filler neck.

    d. Bond doublers on repair area. Follow steps 7 through 17.

    e. Install filler neck. Use sealant (E336). Install rivets to secure filler neck.

GO TO NEXT PAGE

f. Install rivets around doubler at 1 inch pitch. Seal rivets. Use sealant (E336).

INSPECT

REPLACE SHUR LOCK INSERTS

30. Replace shur lock inserts removed with damaged material as follows:

   a. Find position of insert by alignment with other inserts, or from another helicopter.

   b. Mark position and drill 3/16 inch diameter hole through honeycomb. Counterbore each skin. Run couterbore through honeycomb. Use Craig 850-20 counterbore.

   c. Install Shur lock insert from inside. Use SLT 600T9 mask support and guide tool SLT 600G9.

   d. Pot insert. Use adhesive (E40) or (E41). Pot until adhesive flows from both holes.

   e. Cure adhesive for 12 hours at 70°F (21°C).

INSPECT

REPAIR T-CAP EXTRUSION

31. Repair T-cap extrusion as follows:

   a. Remove section of damaged T-cap back to point in line with nearest primary fuselage former.

   b. Clamp new section of extrusion in place.

   c. Drill 0.161 inch diameter holes in extrusion. Use existing pod rivet locations.

   d. Fasten extrusion in place temporarily.

   e. Remove five rivets that secure existing extrusion to pod.

   f. Make splice angle 6-3/4 inches long, 2 inches wide, and 77-degree angle. Use 0.060 inch 4130 steel.

   g. Position splice angle as shown. Check that angle matches extrusion angle. Clamp angle in place

   h. Drill 10 matching holes in angle.

   i. Remove clamps, temporary fasteners, and parts.

   j. Deburr holes.

INSPECT

   k. Apply two coats of primer (E291) to all exposed and faying surfaces of repair. Wear gloves (E186).

   l. Install replacement extrusion and splice angle. Use rivets. Position heads as shown.

   m. Have helper position pod on helicopter. Locate pod installation holes in repair parts. Use hole finder.

   n. Remove pod. Drill 1/4 inch holes in T-cap.

   o. Locate and drill eight 0.161 inch diameter holes, four on each side of splice plate. Position holes at 3/4-inch pitch. Avoid pod installation holes.

   p. Countersink and deburr holes.

   q. Make splice plate 7-1/2 inches long and 3/4-inch wide. Use 0.032-inch 4130 steel.

   r. Position splice plate over holes drilled in step o.

   s. Drill 0.061-inch matching holes through splice plate and lower leg of T-cap.

   t. Remove splice plate. Deburr holes.

INSPECT

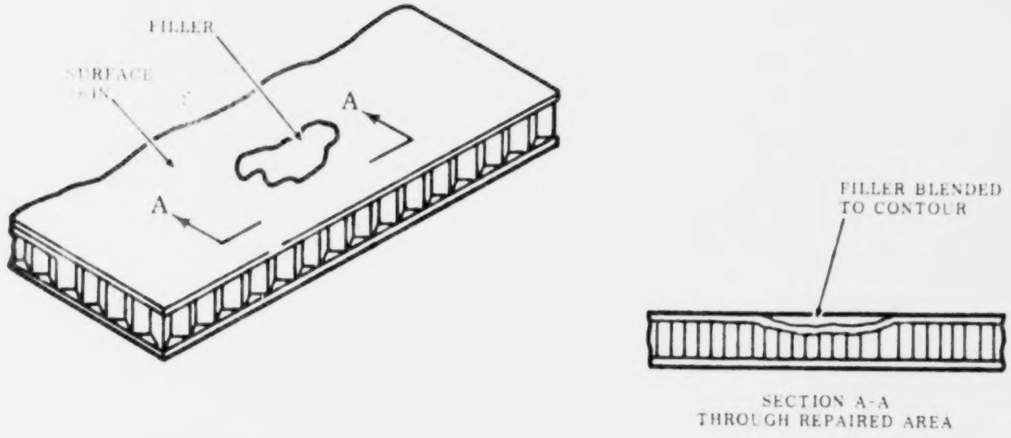
   u. Apply two coats of primer (E291) to all exposed metal and mating surfaces of splice plate. Wear gloves (E186).

   v. Install splice plate. Position rivet heads as shown.

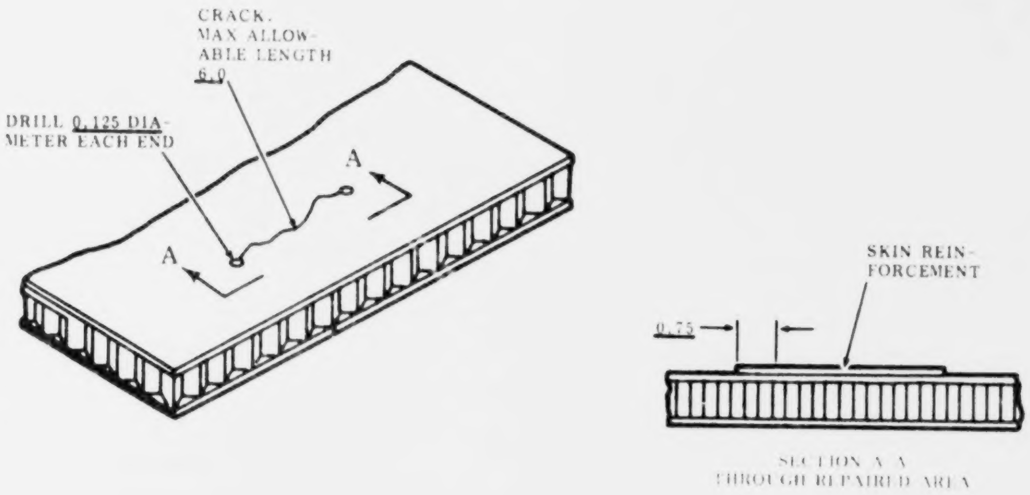
GO TO NEXT PAGE

2-186 REPAIR PODS — MAJOR DAMAGE (AVIM) (Continued) 2-186

REPAIR OF DENTS


FILLER
SURFACE SKIN
A
A
FILLER BLENDED TO CONTOUR
SECTION A-A
THROUGH REPAIRED AREA

REPAIR OF SMALL SINGLE-SKIN DAMAGE


CRACK.
MAX ALLOWABLE LENGTH
6.0
DRILL 0.125 DIAMETER EACH END
A
A
SKIN REINFORCEMENT
0.75
SECTION A-A
THROUGH REPAIRED AREA

NOTE

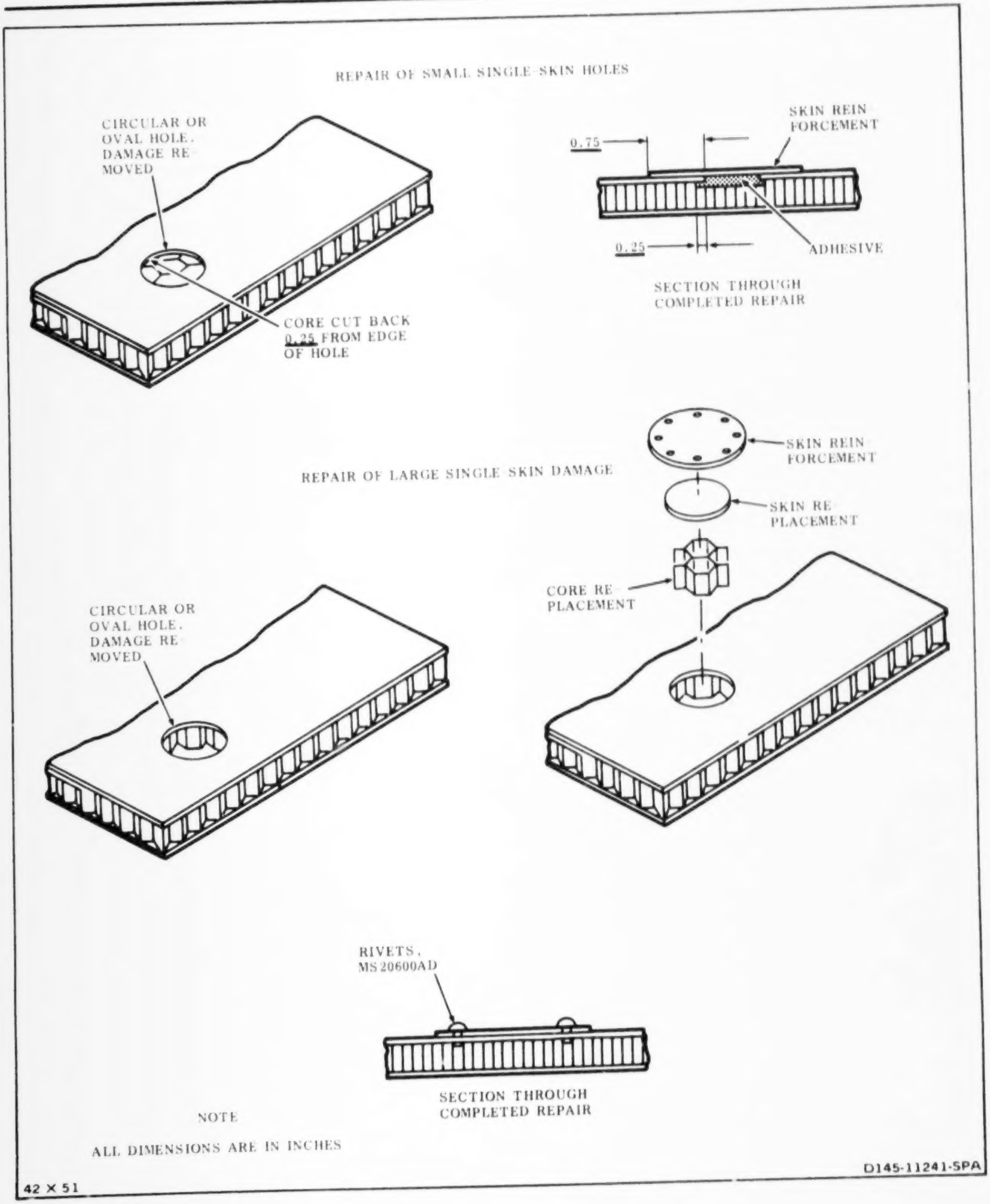
ALL DIMENSIONS ARE IN INCHES

42 X 51

D145-11240-SPA

GO TO NEXT PAGE

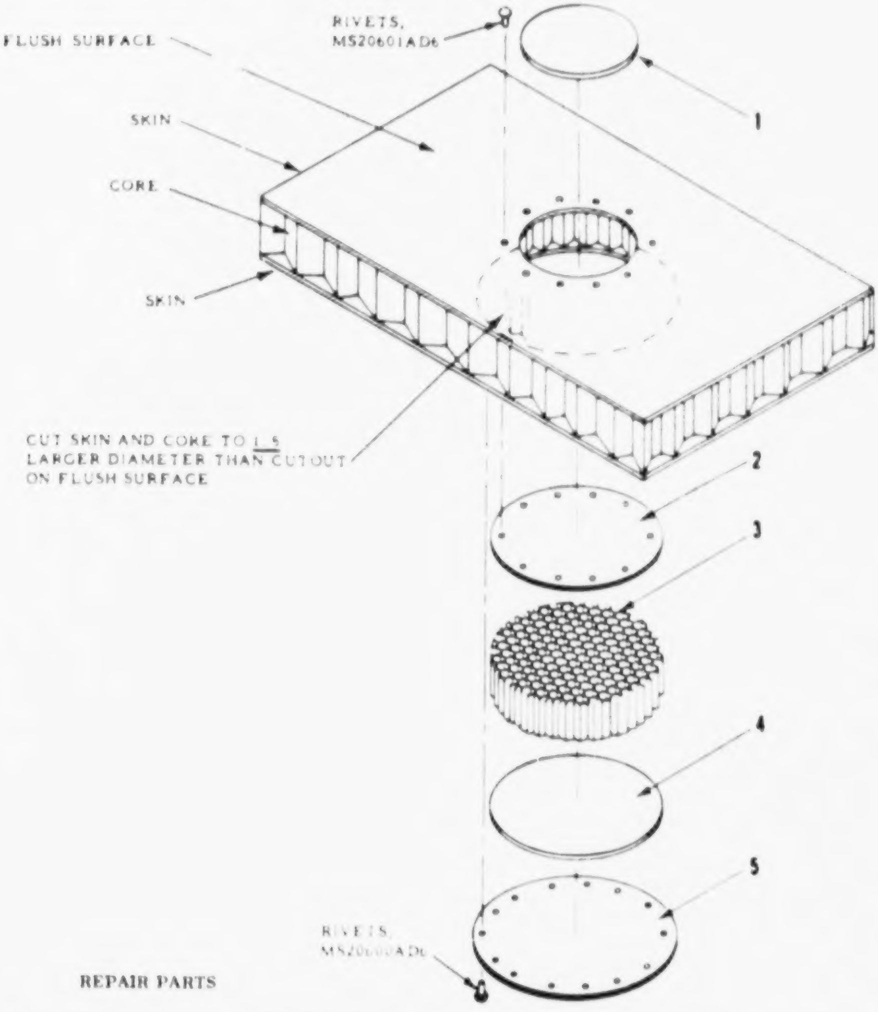
2-186 REPAIR PODS — MAJOR DAMAGE (AVIM) (Continued) 2-186


REPAIR OF SMALL SINGLE-SKIN HOLES
CIRCULAR OR OVAL HOLE. DAMAGE REMOVED
CORE CUT BACK 0.25 FROM EDGE OF HOLE
SKIN REINFORCEMENT
0.75
0.25
ADHESIVE
SECTION THROUGH COMPLETED REPAIR
REPAIR OF LARGE SINGLE-SKIN DAMAGE
SKIN REINFORCEMENT
SKIN REPLACEMENT
CORE REPLACEMENT
CIRCULAR OR OVAL HOLE. DAMAGE REMOVED
RIVETS, MS20600AD
SECTION THROUGH COMPLETED REPAIR
NOTE
ALL DIMENSIONS ARE IN INCHES
D145-11241-SPA
42 X 51

GO TO NEXT PAGE

2-186 REPAIR PODS — MAJOR DAMAGE (AVIM) (Continued) 2-186

DOUBLE-SKIN DAMAGE
(ONE FLUSH SURFACE REQUIRED)


RIVETS,
MS20601AD6
FLUSH SURFACE
SKIN
CORE
SKIN
1
CUT SKIN AND CORE TO 1.5
LARGER DIAMETER THAN CUTOUT
ON FLUSH SURFACE
2
3
4
5
RIVETS,
MS20600AD6

REPAIR PARTS

1. SKIN REPLACEMENT. SAME TYPE MATERIAL AS ORIGINAL
2. SKIN REINFORCEMENT. SAME TYPE MATERIAL AS ORIGINAL, NEXT HEAVIER THICKNESS
3. CORE REPLACEMENT. SAME TYPE MATERIAL AS ORIGINAL
4. SKIN REPLACEMENT. SAME TYPE MATERIAL AS ORIGINAL
5. SKIN REINFORCEMENT. SAME TYPE MATERIAL AS ORIGINAL, NEXT HEAVIER THICKNESS

NOTES

A. ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED

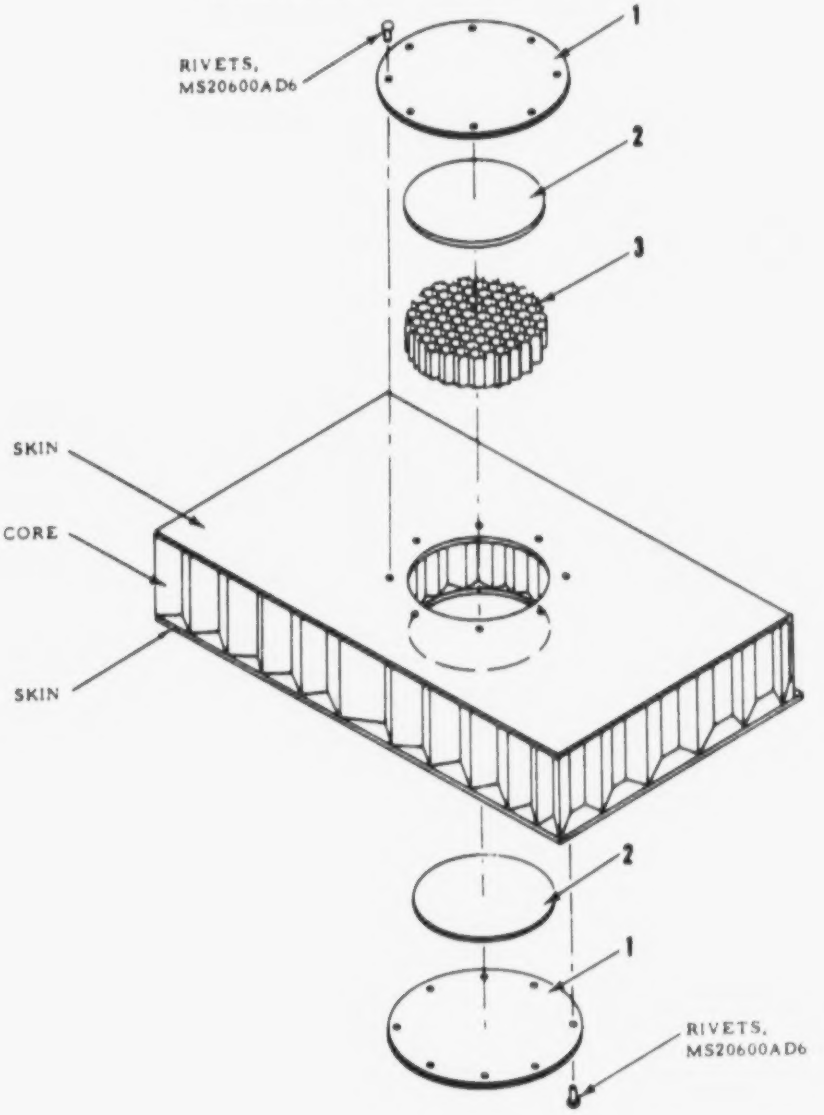
42x51

D145-11242-SPA

GO TO NEXT PAGE

2-186 REPAIR PODS — MAJOR DAMAGE (AVIM) (Continued) 2-186

DOUBLE-SKIN DAMAGE
(FLUSH SURFACE NOT REQUIRED)


1
RIVETS,
MS20600AD6
2
3
SKIN
CORE
SKIN
2
1
RIVETS,
MS20600AD6

REPAIR PARTS

1. SKIN REINFORCEMENT. SAME TYPE MATERIAL AS ORIGINAL, NEXT HEAVIER THICKNESS
2. SKIN REPLACEMENT. SAME TYPE MATERIAL AS ORIGINAL
3. CORE REPLACEMENT. SAME TYPE MATERIAL AS ORIGINAL

42x51 D145-11243-SPA

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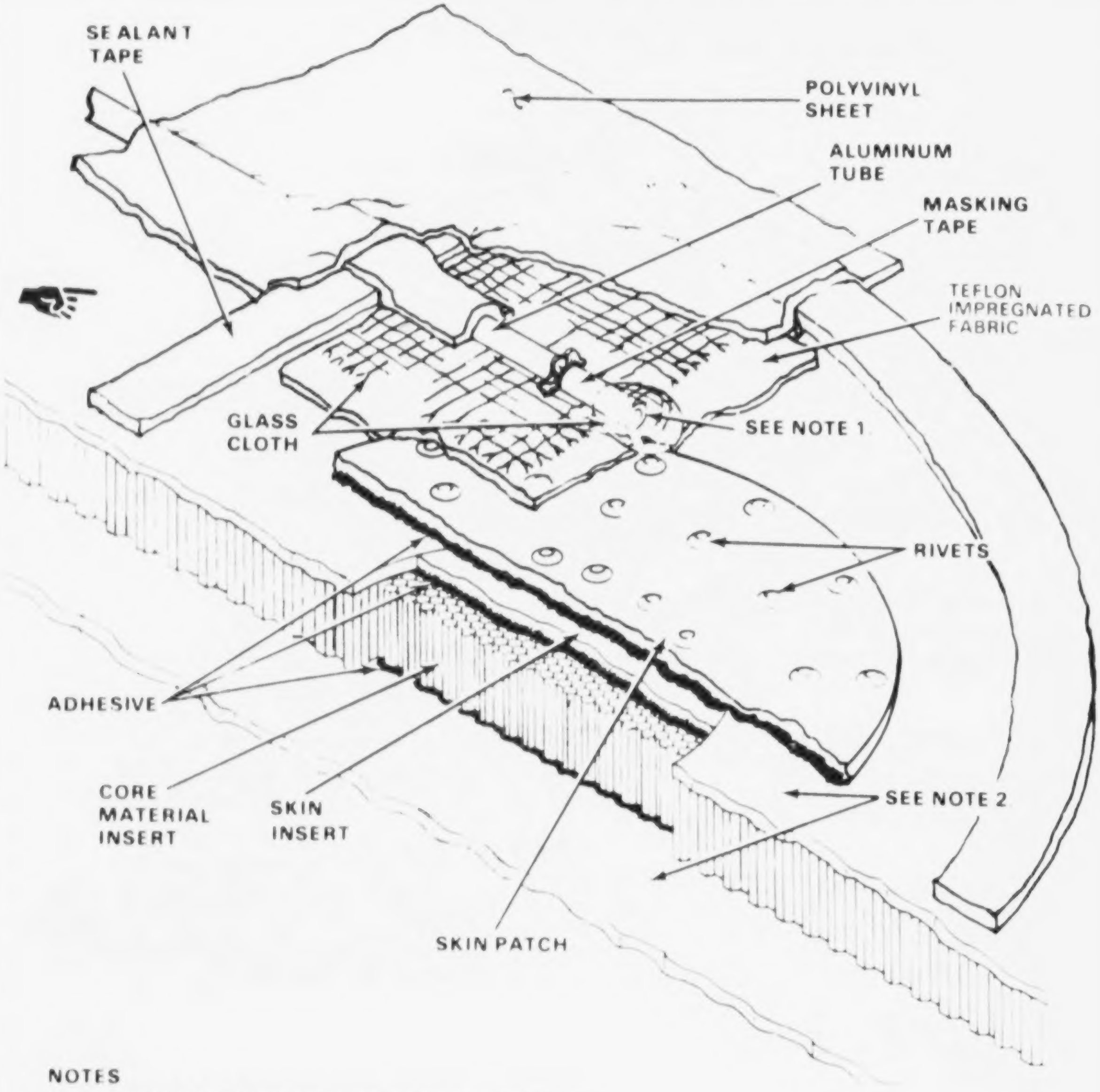

SEALANT TAPE
POLYVINYL SHEET
ALUMINUM TUBE
MASKING TAPE
TEFLON IMPREGNATED FABRIC
GLASS CLOTH
SEE NOTE 1
RIVETS
ADHESIVE
SEE NOTE 2
CORE MATERIAL INSERT
SKIN INSERT
SKIN PATCH

NOTES

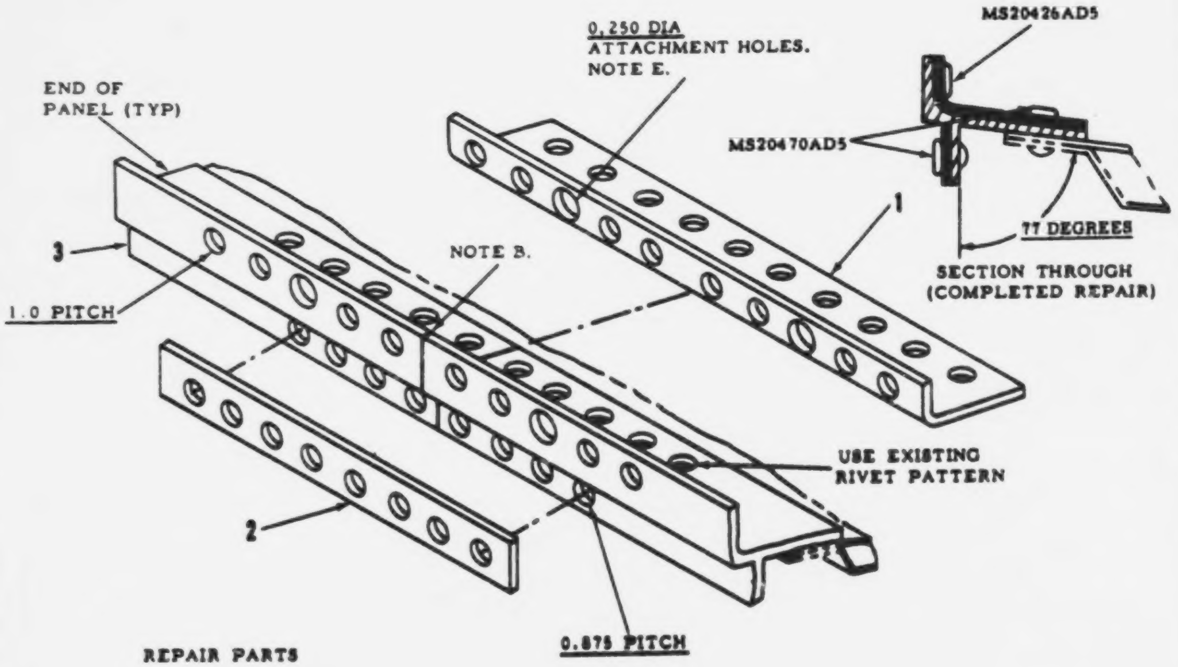
1 APPLY VACUUM TO ENSURE CONTACT DURING CURING. 12 HOURS MINIMUM @ 65 TO 80° F. PATCH AREA LESS THAN 144 SQUARE INCHES, 20 TO 28 INCHES VACUUM. PATCH AREA MORE THAN 144 SQUARE INCHES, 28 TO 30 INCHES VACUUM.

2 ABRADE AREA TO ENSURE PROPER ADHESION

9509

GO TO NEXT PAGE

2-186 REPAIR PODS — MAJOR DAMAGE (AVIM) (Continued) 2-186


0.250 DIA
ATTACHMENT HOLES.
NOTE E.
MS20426AD5
END OF
PANEL (TYP)
MS20470AD5
1
77 DEGREES
SECTION THROUGH
(COMPLETED REPAIR)
3
NOTE B.
1.0 PITCH
USE EXISTING
RIVET PATTERN
2
0.875 PITCH

REPAIR PARTS

1. REINFORCEMENT. 0.060, 4130
2. REINFORCEMENT. 0.032, 4130
3. REPLACEMENT. V890529, 7075-T6

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REMOVE THE DAMAGED TEE CAP BACK TO THE CENTERLINE OF THE NEXT MAIN FUSELAGE FRAME
C. INSULATE DISSIMILAR METALS, REFER TO TASK 2-351.
D. COVER ALL INTERNAL PROTRUSIONS RESULTING FROM THIS REPAIR. REFER TO TASK 2-337. APPLY TWO COATS OF PRIMER (E291) TO ANY BARE METAL PARTS
E. ATTACHMENT HOLES SHOWN ARE FOR REFERENCE ONLY. USE A HOLE FINDER TO DETERMINE THE EXACT LOCATION OF THE ATTACHMENT HOLES WITH THE POD TEMPORARILY INSTALLED ON HELICOPTER

D145-11245-8PA

42x51

FOLLOW-ON MAINTENANCE:

Apply Anti-Chafing Tape (Task 2-337)

Refinish (Task 2-346) (Task 2-348)

END OF TASK

2-187 REPAIR PODS — DAMAGE REQUIRING REPLACEMENT 2-187

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-13
Task 2-186

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Replace pod sections that have cracks over 6 inches long, or voids over 1200 square inches. Replace pod sections that have dents larger than 10 square inches, or deeper than 0.15 inch or 15 percent of material thickness. Total dent area in a pod section shall not exceed 100 square inches. Dents shall be at least 20 inches apart (Task 2-13).
2. Replace pod sections if skin damage exceeds 25 percent of skin area, or which interferes with structural boundary members (Task 2-13).
3. Replace pod sections when skin in honeycomb section areas exceeds 100 square inches after trimming (Task 2-186).
4. Replace pod sections with repair areas closer together than 20 inches.

FOLLOW-ON MAINTENANCE:

As Required.

END OF TASK

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR 2-187.1

INITIAL SETUP

Applicable Configurations:

With 4

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Vacuum Cleaner
Vacuum Pump
Explosion-Proof Heat Lamp, 250 Watt
Sanding Block

Materials:

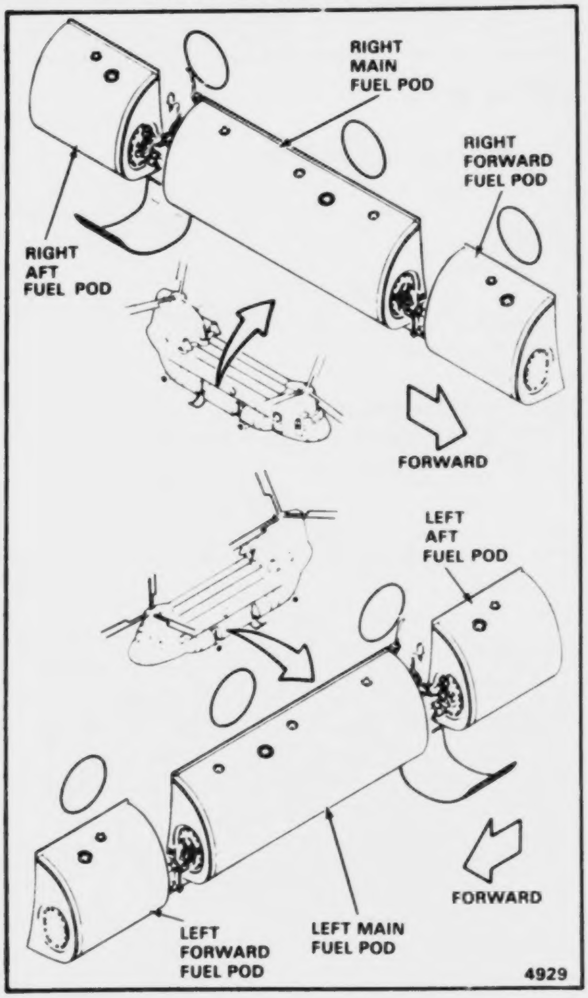
Abrasive Paper (E9)
Acetone (E20)
Gloves (E186)
Screen (E324)
Glass Cloth (E132)
Masking Tape (E388)
Sealing Tape (E396)
Polyvinyl Sheet (E284)
Temperature Indicating Strips (E413)
Cloths (E120)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required


RIGHT MAIN FUEL POD
RIGHT FORWARD FUEL POD
RIGHT AFT FUEL POD
FORWARD
LEFT AFT FUEL POD
FORWARD
LEFT FORWARD FUEL POD
LEFT MAIN FUEL POD
4929

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

DETERMINE DAMAGE

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

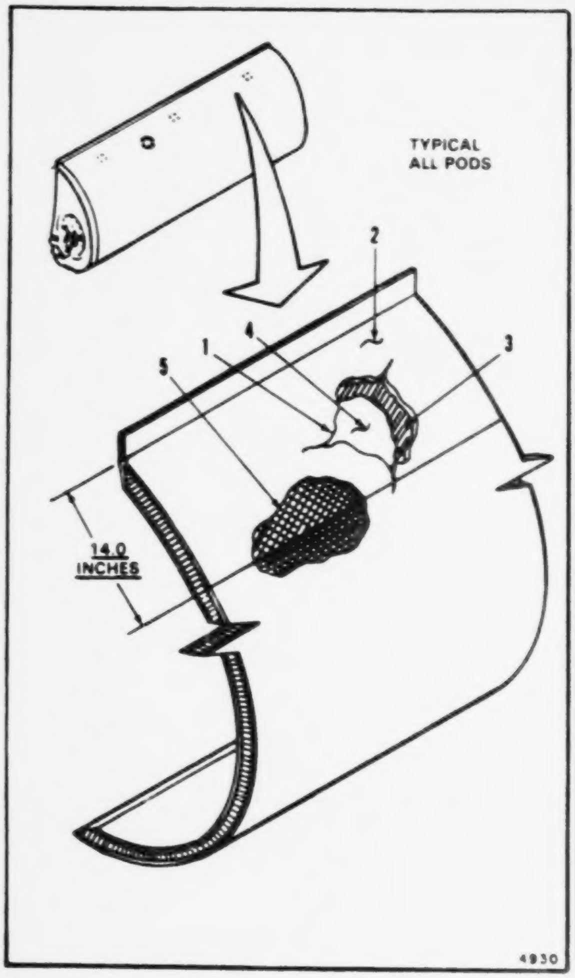
CAUTION

Chemical paint strippers will damage pod.

CAUTION

Do not soak tank with acetone. It will damage pod.

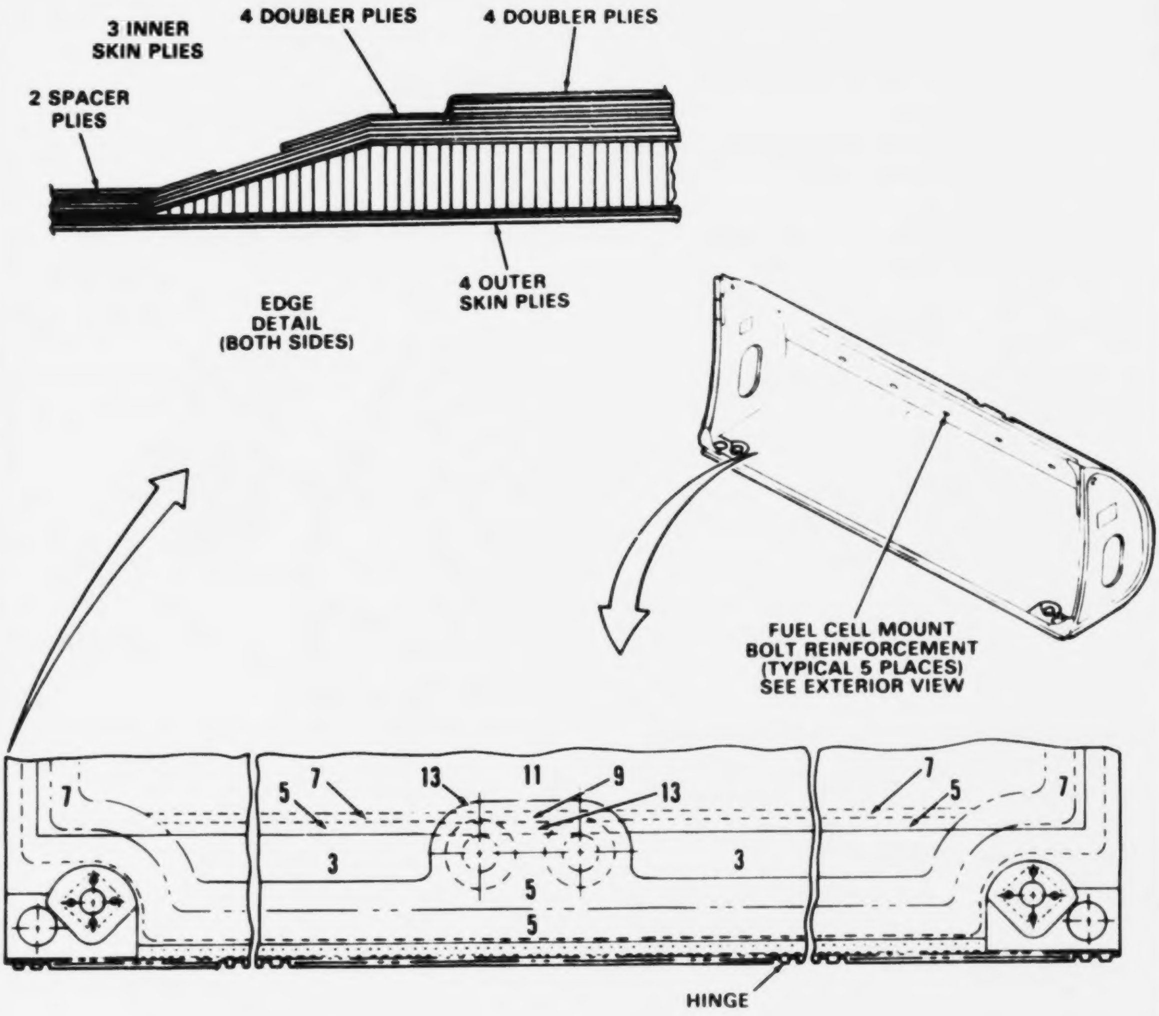
1. **Clean damaged area (1)**. Use clean cloths (E120) damp with acetone (E20). Wear gloves (E186). Wipe dry with clean dry cloths.
2. **Examine pod for type and location of damage**. Note if damage is limited to surface skin (2) only or extends into core (3) or bottom skin (4). Note if damage goes through wire mesh (5).
3. **Check area around damage for skin delamination**. Tap area with a small metallic object such as a coin. A dull sound indicates delamination.
4. **If damage penetrates surface skin (2), check core (3) for** water, oil, fuel, dirt, or other **foreign matter**.



GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

MAIN FUEL POD INTERIOR
(SHEET 1)

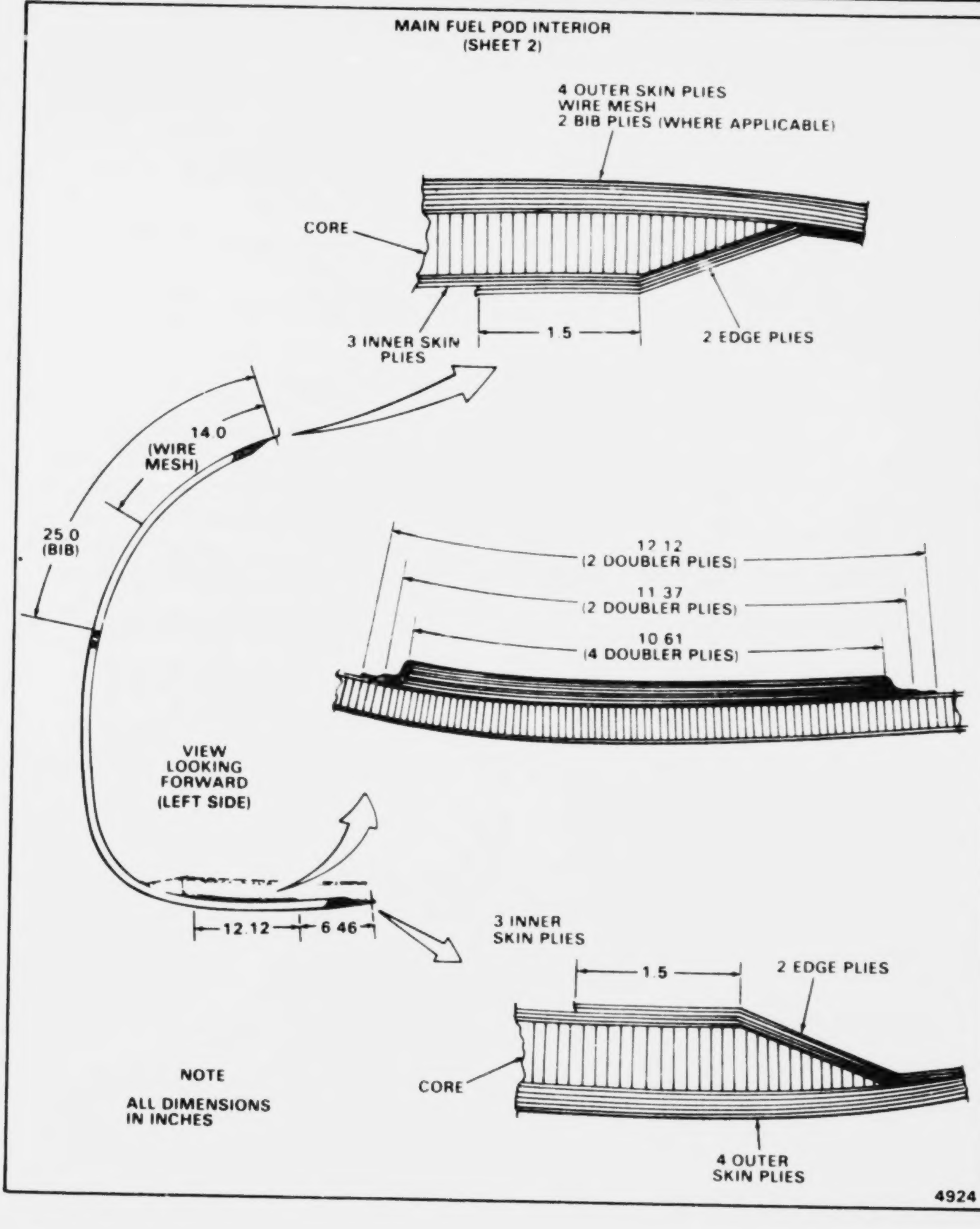

3 INNER SKIN PLIES
4 DOUBLER PLIES
4 DOUBLER PLIES
2 SPACER PLIES
4 OUTER SKIN PLIES
EDGE DETAIL (BOTH SIDES)
FUEL CELL MOUNT BOLT REINFORCEMENT (TYPICAL 5 PLACES) SEE EXTERIOR VIEW
7
5
7
13
11
9
13
7
5
7
3
3
5
5
HINGE

NOTE
NUMBERS INDICATE
INSIDE SKIN PLIES
IN AREA.

7996

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1



MAIN FUEL POD INTERIOR
(SHEET 2)

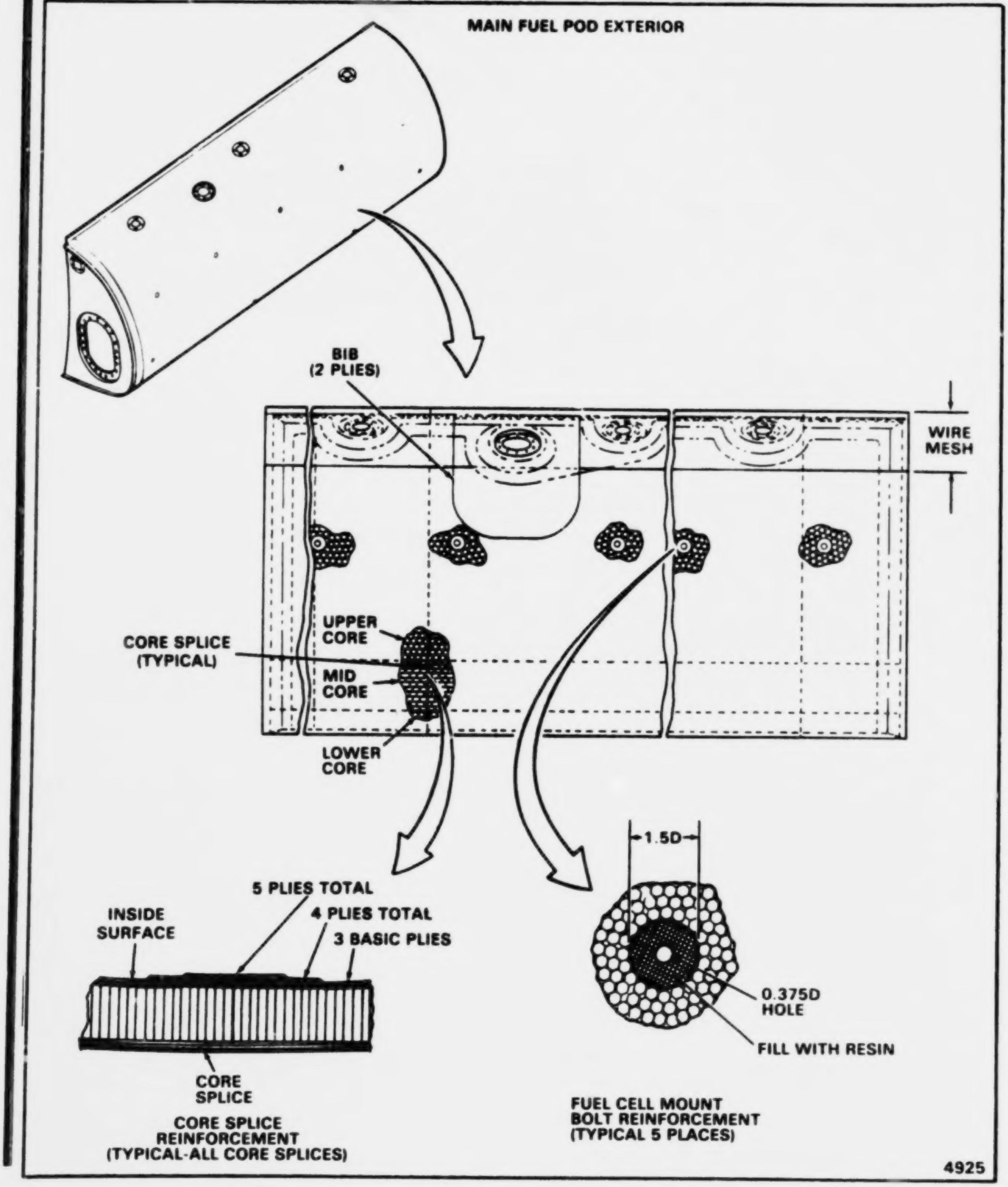
4 OUTER SKIN PLIES
WIRE MESH
2 BIB PLIES (WHERE APPLICABLE)
CORE
3 INNER SKIN PLIES
1.5
2 EDGE PLIES
14.0 (WIRE MESH)
25.0 (BIB)
12.12 (2 DOUBLER PLIES)
11.37 (2 DOUBLER PLIES)
10.61 (4 DOUBLER PLIES)
VIEW LOOKING FORWARD (LEFT SIDE)
12.12
6.46
3 INNER SKIN PLIES
1.5
2 EDGE PLIES
CORE
4 OUTER SKIN PLIES
4924

NOTE

ALL DIMENSIONS IN INCHES

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

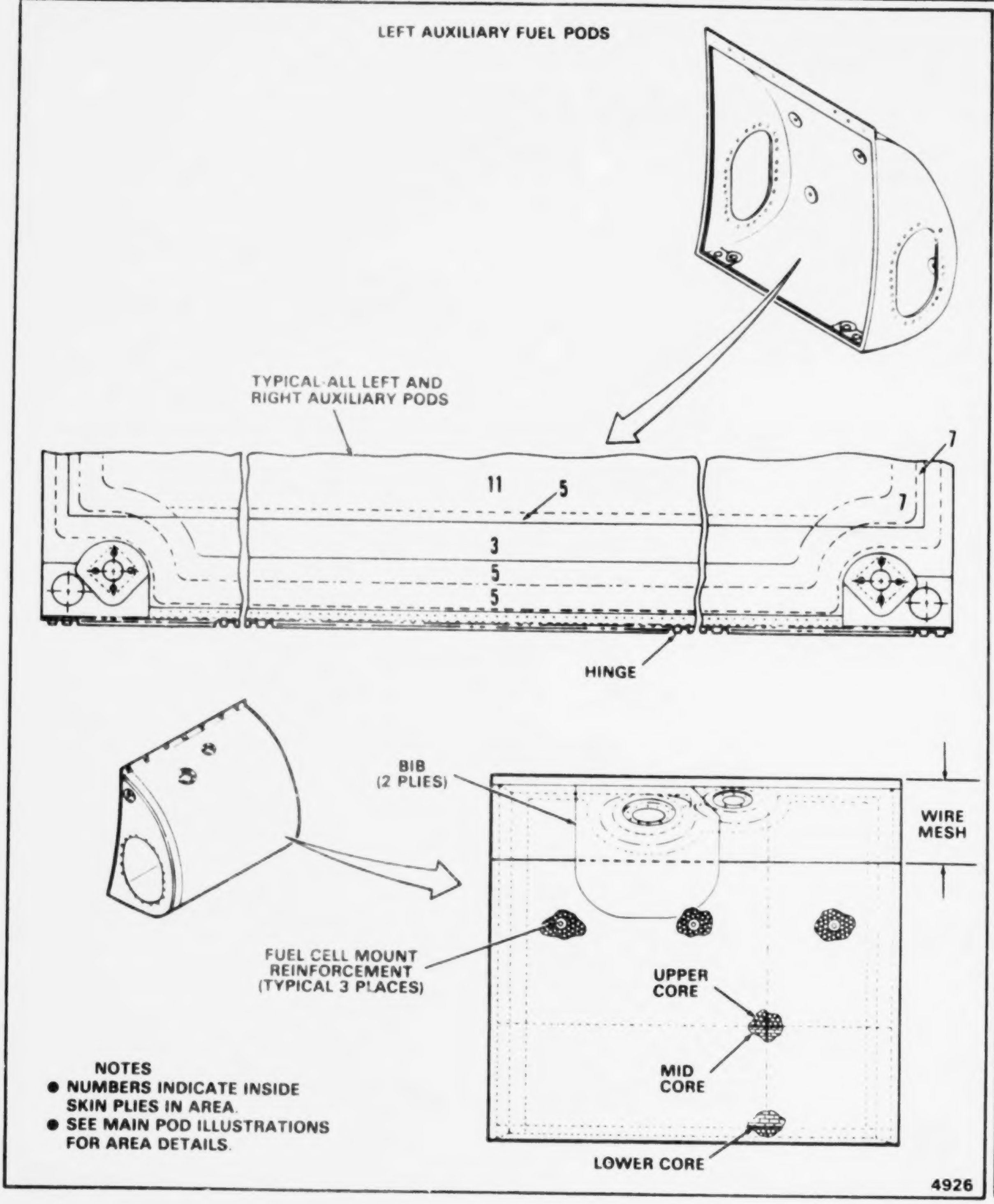

MAIN FUEL POD EXTERIOR
BIB (2 PLIES)
WIRE MESH
UPPER CORE
CORE SPLICE (TYPICAL)
MID CORE
LOWER CORE
5 PLIES TOTAL
4 PLIES TOTAL
3 BASIC PLIES
INSIDE SURFACE
CORE SPLICE
1.5D
0.375D HOLE
FILL WITH RESIN
4925

CORE SPLICE REINFORCEMENT (TYPICAL-ALL CORE SPLICES)

FUEL CELL MOUNT BOLT REINFORCEMENT (TYPICAL 5 PLACES)

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

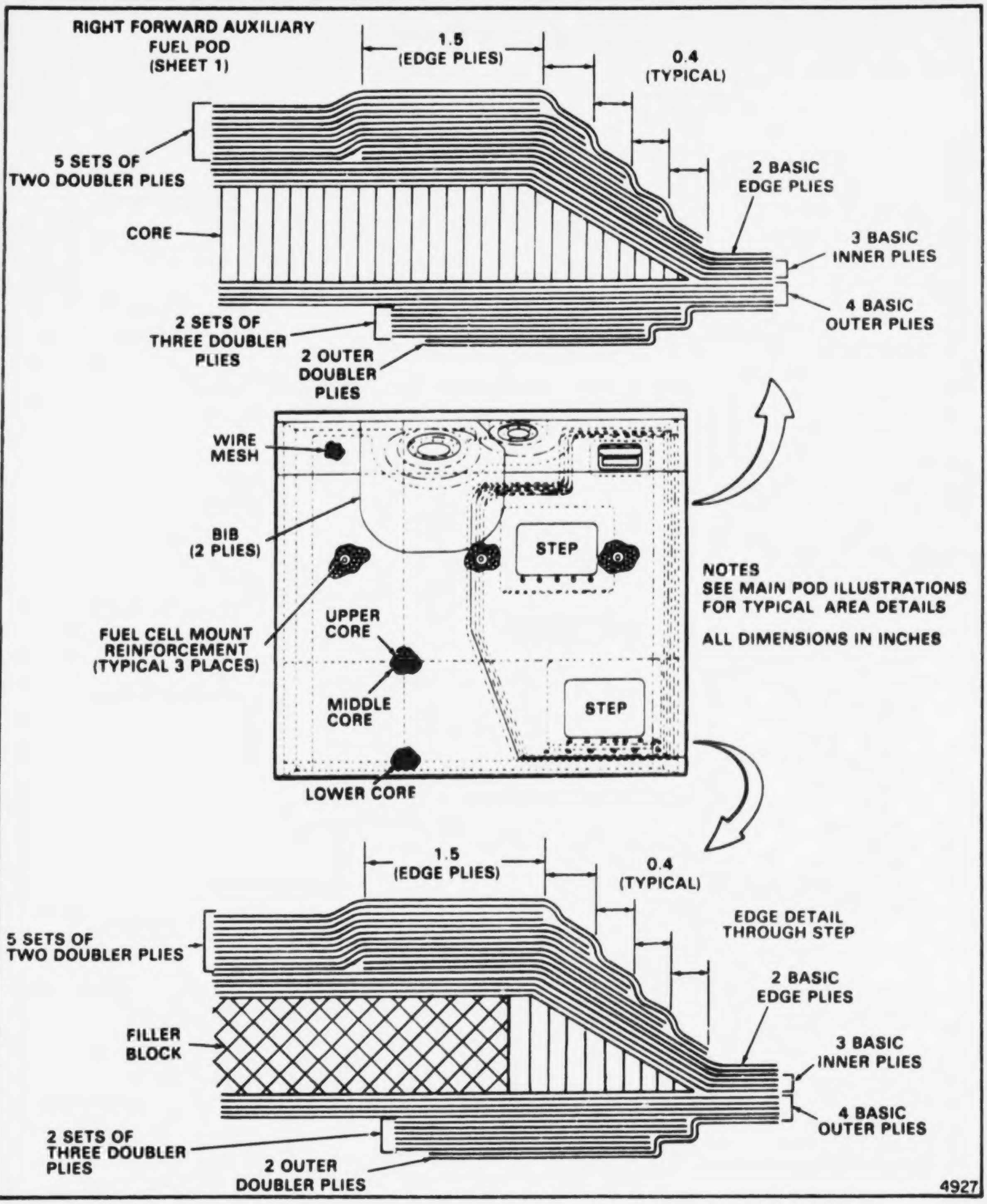

LEFT AUXILIARY FUEL PODS
TYPICAL-ALL LEFT AND RIGHT AUXILIARY PODS
11
5
3
5
5
7
7
HINGE
BIB (2 PLIES)
WIRE MESH
FUEL CELL MOUNT REINFORCEMENT (TYPICAL 3 PLACES)
UPPER CORE
MID CORE
LOWER CORE
4926

NOTES

- NUMBERS INDICATE INSIDE SKIN PLIES IN AREA.
- SEE MAIN POD ILLUSTRATIONS FOR AREA DETAILS.

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1


RIGHT FORWARD AUXILIARY
FUEL POD
(SHEET 1)
1.5
(EDGE PLIES)
0.4
(TYPICAL)
5 SETS OF
TWO DOUBLER PLIES
2 BASIC
EDGE PLIES
CORE
3 BASIC
INNER PLIES
4 BASIC
OUTER PLIES
2 SETS OF
THREE DOUBLER
PLIES
2 OUTER
DOUBLER
PLIES
WIRE
MESH
BIB
(2 PLIES)
STEP
FUEL CELL MOUNT
REINFORCEMENT
(TYPICAL 3 PLACES)
UPPER
CORE
MIDDLE
CORE
STEP
LOWER CORE
1.5
(EDGE PLIES)
0.4
(TYPICAL)
EDGE DETAIL
THROUGH STEP
5 SETS OF
TWO DOUBLER PLIES
2 BASIC
EDGE PLIES
FILLER
BLOCK
3 BASIC
INNER PLIES
4 BASIC
OUTER PLIES
2 SETS OF
THREE DOUBLER
PLIES
2 OUTER
DOUBLER PLIES
4927

NOTES
SEE MAIN POD ILLUSTRATIONS FOR TYPICAL AREA DETAILS

ALL DIMENSIONS IN INCHES

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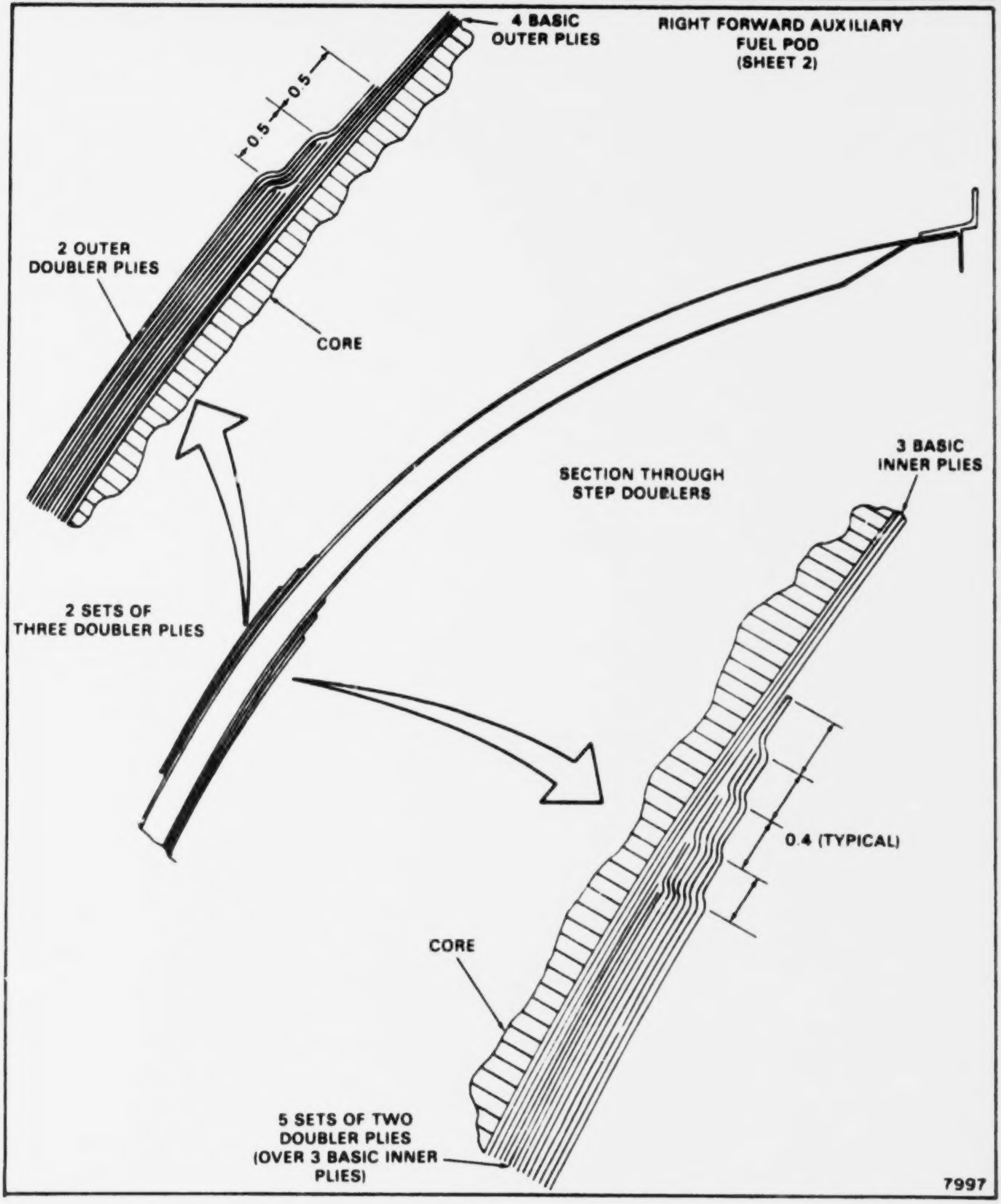
2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1


4 BASIC OUTER PLIES
RIGHT FORWARD AUXILIARY FUEL POD (SHEET 2)
0.5
0.5
2 OUTER DOUBLER PLIES
CORE
SECTION THROUGH STEP DOUBLERS
3 BASIC INNER PLIES
2 SETS OF THREE DOUBLER PLIES
0.4 (TYPICAL)
CORE
5 SETS OF TWO DOUBLER PLIES (OVER 3 BASIC INNER PLIES)
7997

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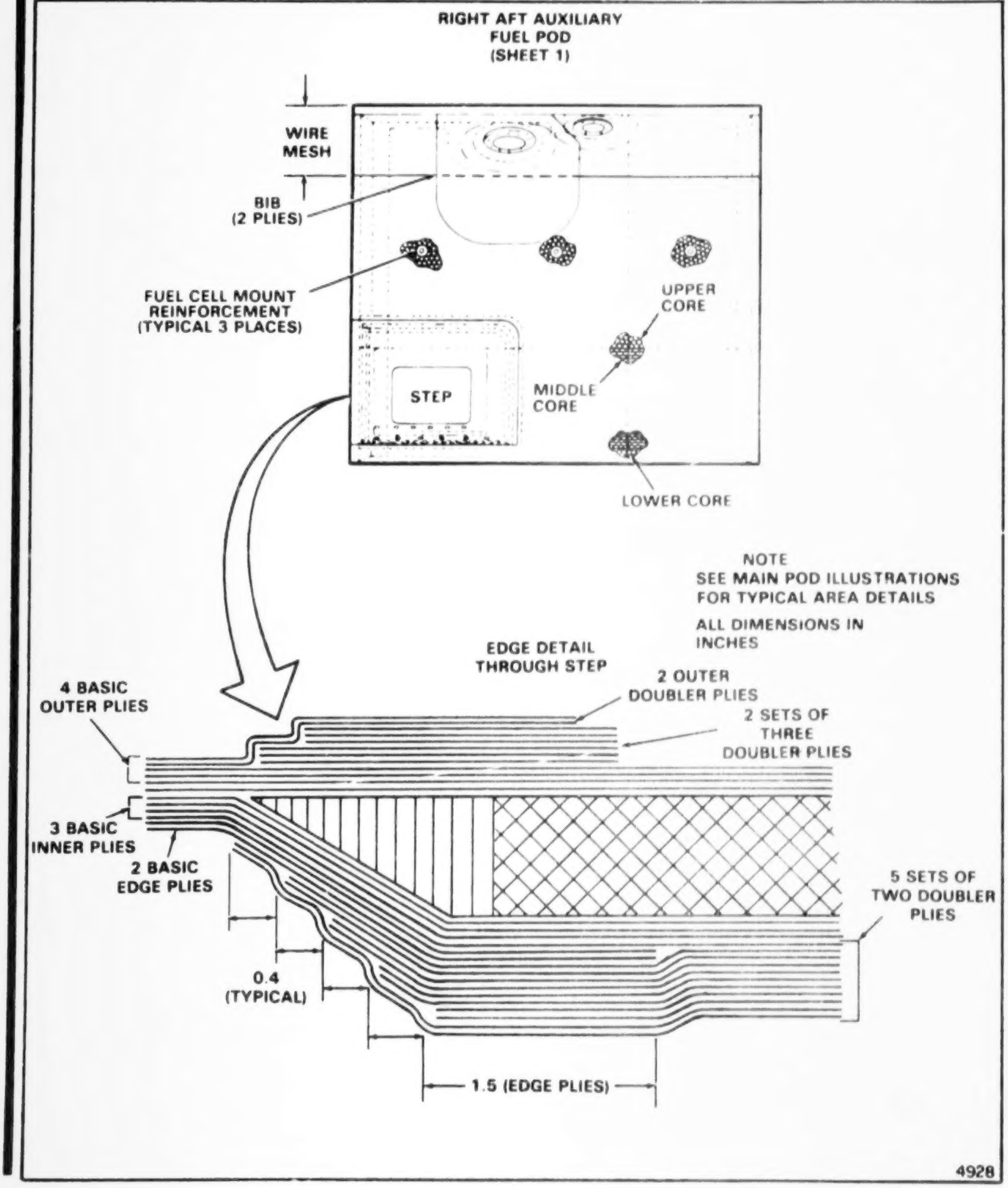
2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1


RIGHT AFT AUXILIARY
FUEL POD
(SHEET 1)
WIRE
MESH
BIB
(2 PLIES)
FUEL CELL MOUNT
REINFORCEMENT
(TYPICAL 3 PLACES)
UPPER
CORE
STEP
MIDDLE
CORE
LOWER CORE
NOTE
SEE MAIN POD ILLUSTRATIONS
FOR TYPICAL AREA DETAILS
ALL DIMENSIONS IN
INCHES
EDGE DETAIL
THROUGH STEP
4 BASIC
OUTER PLIES
2 OUTER
DOUBLER PLIES
2 SETS OF
THREE
DOUBLER PLIES
3 BASIC
INNER PLIES
2 BASIC
EDGE PLIES
5 SETS OF
TWO DOUBLER
PLIES
0.4
(TYPICAL)
1.5 (EDGE PLIES)
4928

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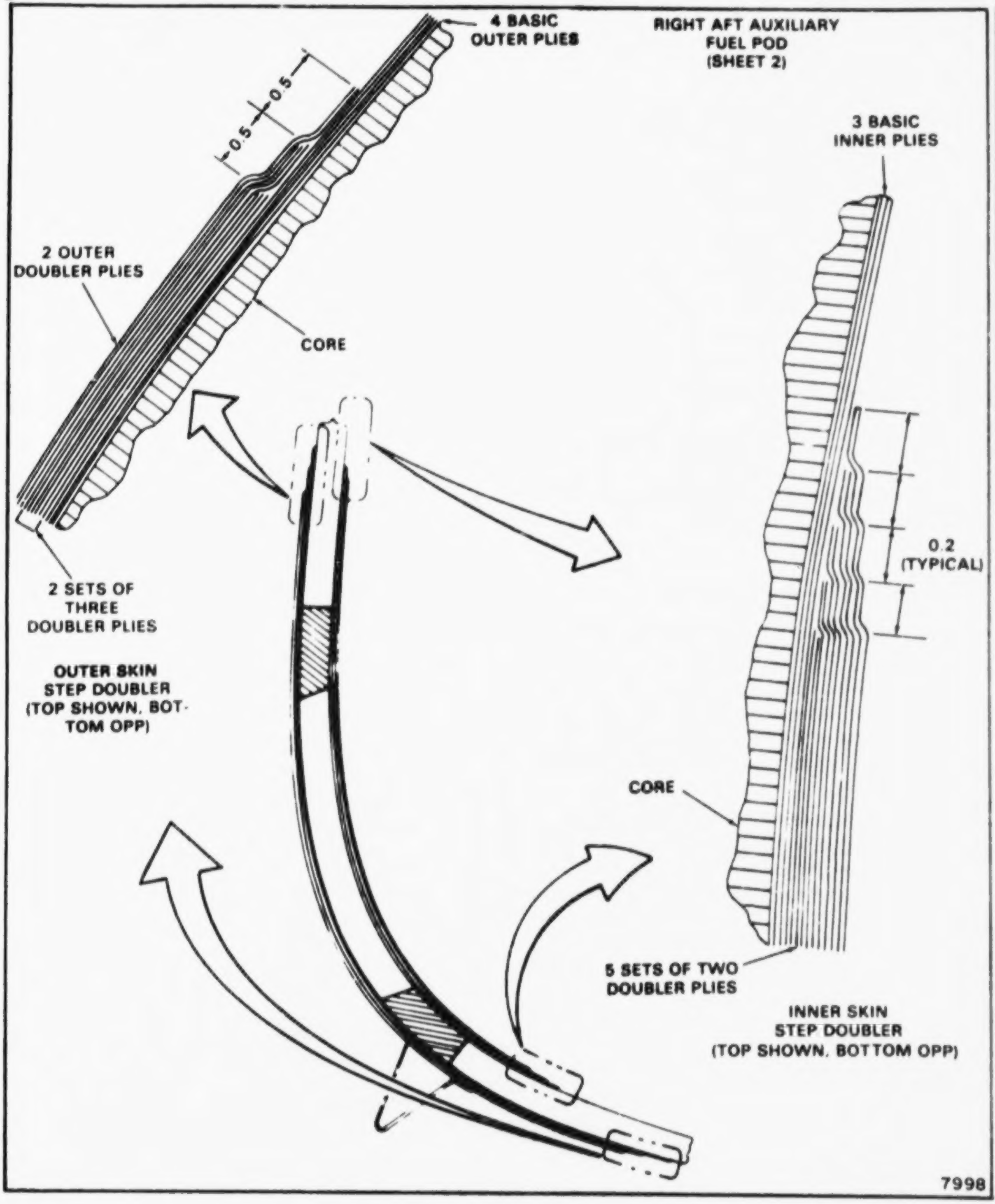
2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1


4 BASIC OUTER PLIES
RIGHT AFT AUXILIARY FUEL POD (SHEET 2)
0.5
0.5
3 BASIC INNER PLIES
2 OUTER DOUBLER PLIES
CORE
0.2 (TYPICAL)
2 SETS OF THREE DOUBLER PLIES
OUTER SKIN STEP DOUBLER (TOP SHOWN, BOTTOM OPP)
CORE
5 SETS OF TWO DOUBLER PLIES
INNER SKIN STEP DOUBLER (TOP SHOWN, BOTTOM OPP)
7998

GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

REMOVE WATER

5. **If water or other fluid has entered core (3), remove it** as follows:

   a. **Cut away damaged skin (2)** to expose core (3) in the damaged area.

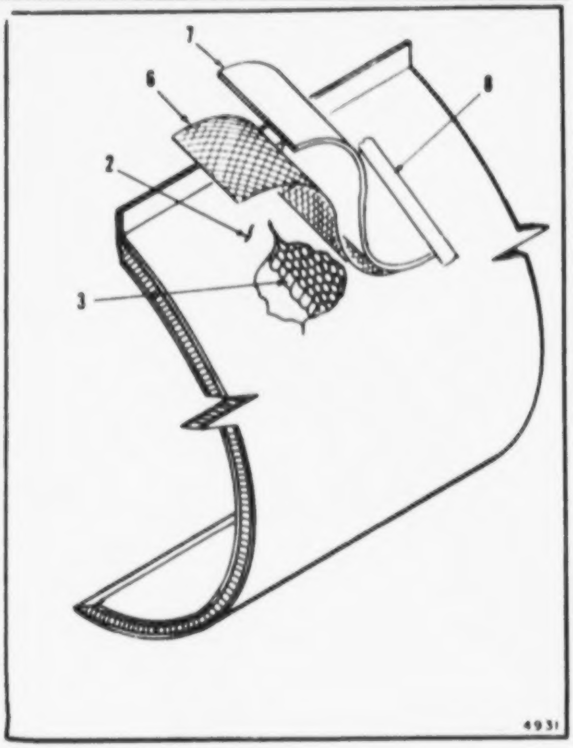
   b. **Remove standing fluid** from core (3). Use a vacuum cleaner.

   NOTE

   Removal of all adhesive clinging to core is not required.

   c. **Remove adhesive** from top surface of core (3). Use abrasive paper (E9). Remove adhesive particles from core with vacuum cleaner.

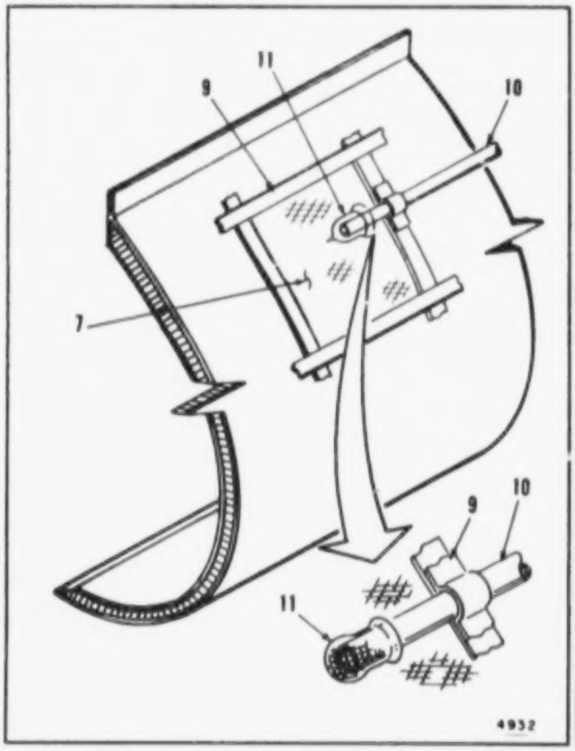
   d. **Cut a piece of screen (E324) (6)** to fit over exposed core (3). **Cover screen with glass cloth (7).** Secure cloth with masking tape (E388) (8).



   e. **Apply sealing tape (E396) (9)** around the damaged area.

   f. **Attach tube (10) to vacuum pump** hose. Wrap end of tube (10) with two layers of fiberglass cloth (E132) (11). Secure cloth to tube with masking tape (E388).

   g. **Place tube (10) on cloth (7)** over damaged area. Wrap tube with sealing tape (E396) (9) where it crosses the border of tape already applied. Press to make an airtight seal between tube and the border of sealing tape.



GO TO NEXT PAGE

2-187.1 PREPARE COMPOSITE POD DAMAGED AREA FOR REPAIR (Continued) 2-187.1

h. Press polyvinyl sheet (E284) (12) smoothly onto tape (9) to make an air-tight seal.

i. **Start vacuum pump**. Set pump for vacuum of 3 inches Hg and check for leaks. Reposition polyvinyl sheet (12) or add tape (9) as needed.

j. Increase vacuum to 22 inches Hg .

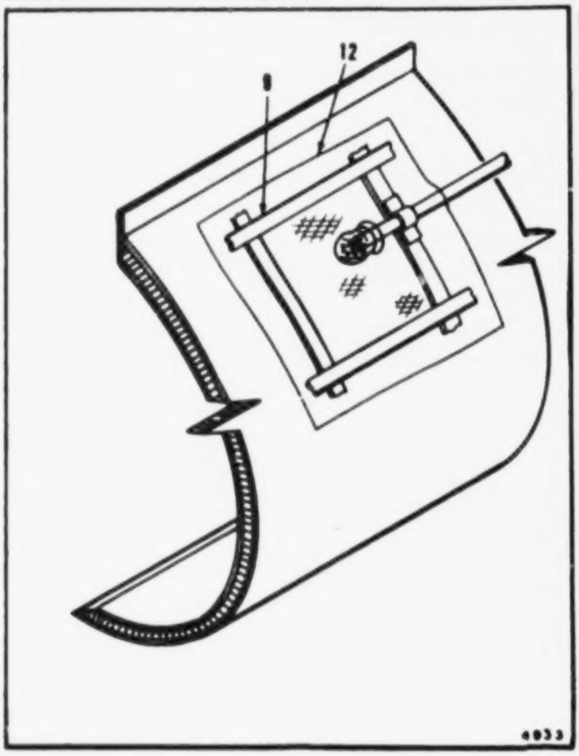
WARNING

Use an explosion-proof heat lamp. Otherwise, personal injury can occur.

CAUTION

Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

k. Heat the repair area to 150°F to 160°F (66°C to 71°C) for 1 hour . Use heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413). Make sure rate of heat rise does not exceed 5°F (3°C) per minute.

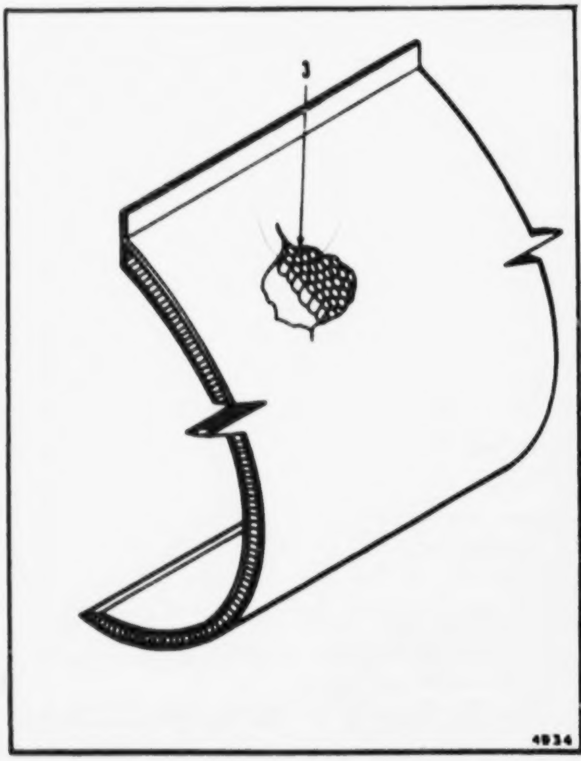


l. Turn off vacuum pump. Remove material from pod surface. Check that exposed core (3) is dry.

INSPECT

FOLLOW-ON MAINTENANCE:

Repair pod as required. (Tasks 2-187.2 through 2-187.7)



END OF TASK

2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION 2-187.2

INITIAL SETUP

Applicable Configurations:

With 4

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Straightedge
Pencil Compass
Craftsman's Knife
Vacuum Cleaner
Vacuum Pump
Roller
Scissors
Explosion-Proof Heat Lamp, 250 Watt

Materials:

Abrasive Paper (E6)
Template Paper (E263)
Masking Tape (E388)
Abrasive Paper (E8)
Cloths (E120)
Acetone (E20)
Gloves (E186)
Abrasive Paper (E8)
Glass Cloth 181-150 (E132.1) or
Glass Cloth 181-77 (E132.2)
Cellophane (E98)
Resin (E47)
Hardener (E192)
Wood Spatula (E424)
Polyethylene Cup (E157)
Wire Mesh (E453.1)
Peel Ply (E270)
Teflon-Impregnated Fabric (E170)
Fiberglass Cloth (E132)
Polyvinyl Sheet (E284)
Sealing Tape (E396)
Temperature Indicating Strips (E413)

References:

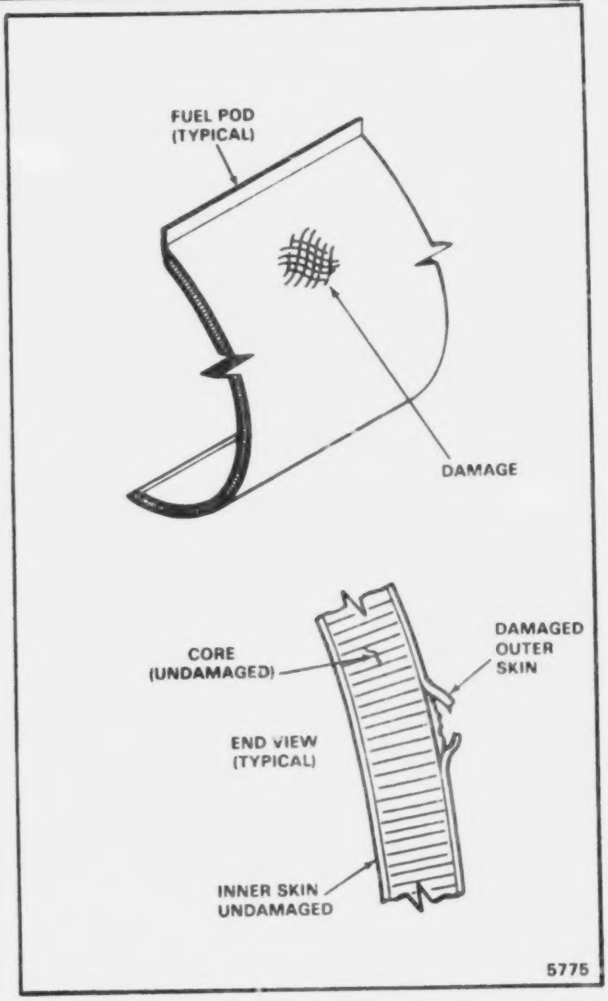
Task 2-187.1

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Fuel Tank Prepared for Repair (Task 2-187.1)



General Safety Instructions:

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

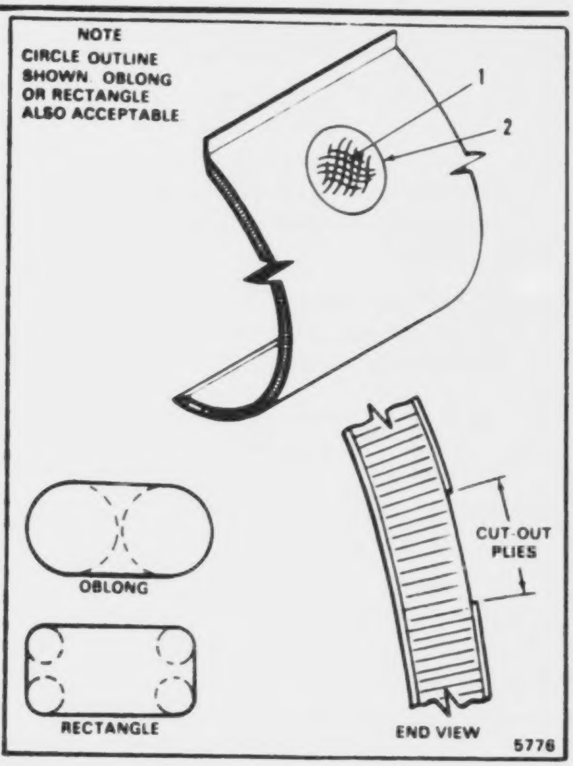
REMOVE FINISH

1. **Outline area of damage (1).** Shape of outline (2) shall have no corners. A circle or oblong is preferred. Use pencil compass and straightedge.

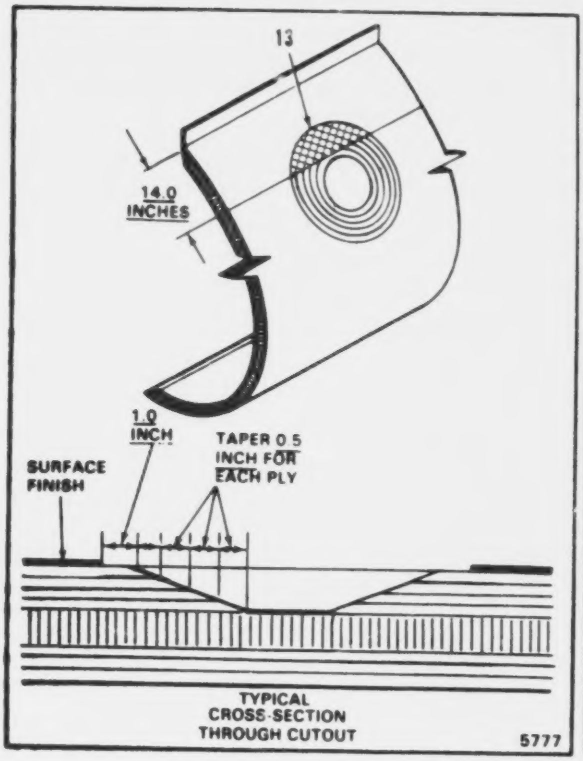
NOTE

Do not cut into undamaged plies.

2. **Cut into damaged plies along outline (2).** Use craftsman's knife.
3. **Remove damaged plies** by peeling away or by sanding. Use abrasive paper (E6).


NOTE
CIRCLE OUTLINE SHOWN. OBLONG OR RECTANGLE ALSO ACCEPTABLE
1
2
OBLONG
RECTANGLE
CUT-OUT PLIES
END VIEW
5776

4. **Determine number of plies cut through** on skin. **Mask off area around removed plies equal to at least 0.5 inch for each ply in all directions, plus an additional 1.0 inch** . Use template paper (E263) and masking tape (E388).
5. **Remove finish from masked area.** Use sanding block and abrasive paper (E6). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
6. Complete finish removal with abrasive paper (E8). In areas of wire mesh (3), do not sand through mesh. If mesh was removed, expose mesh for 1.0 inch around removed area.
7. **Taper edge of cut out plies 0.5 inch** for each ply removed. Leave at least 1.0 inch between outside edge of taper and border of finish removal area.
8. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean, dry cloth.


13
14.0 INCHES
1.0 INCH
TAPER 0.5 INCH FOR EACH PLY
SURFACE FINISH
TYPICAL CROSS-SECTION THROUGH CUTOUT
5777

GO TO NEXT PAGE

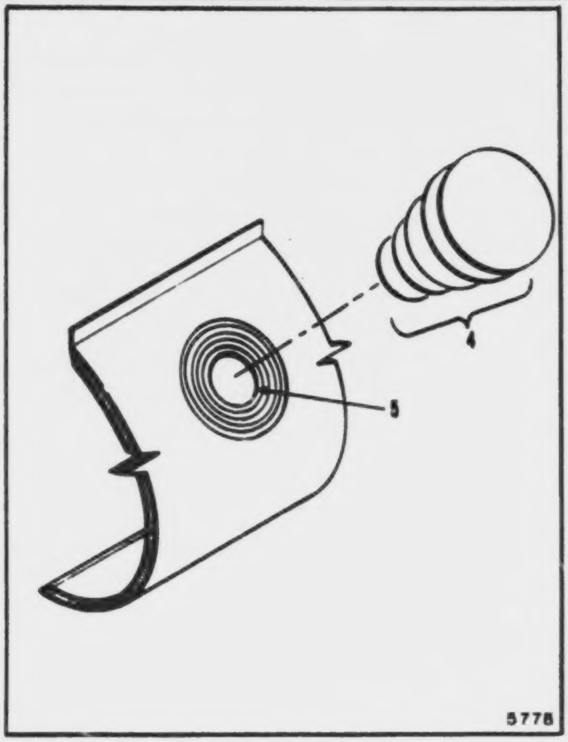
2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

PREPARE REPAIR MATERIALS

CAUTION

Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

9. **Determine number and size of pieces of glass cloth (E132.1 or E132.2) needed for repair:**
    a. Number of pieces (4) shall be equal to one more than the number of plies removed.
    b. Smallest piece (4) shall be large enough to overlap bottom of cutout (5) 0.5 inch.
    c. Each additional piece shall be large enough to overlap previous piece 0.5 inch in all directions.
    d. All pieces shall be oriented so that weave of cloth will run horizontally and vertically on pod.
10. Check that finish on pod is removed for at least 0.5 inch more than size determined for largest piece (4).



2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

11. **Cut one piece of cloth (6) large enough for cutting the number of pieces (4) as needed.**
12. **Cut two pieces of cellophane (E98) (7 and 8) at least 1 inch larger all around than piece of cloth (6) cut in step 11. Fasten one piece to a smooth surface. Use masking tape (E388).**
13. **Prepare adhesive mixture as follows:**

NOTE

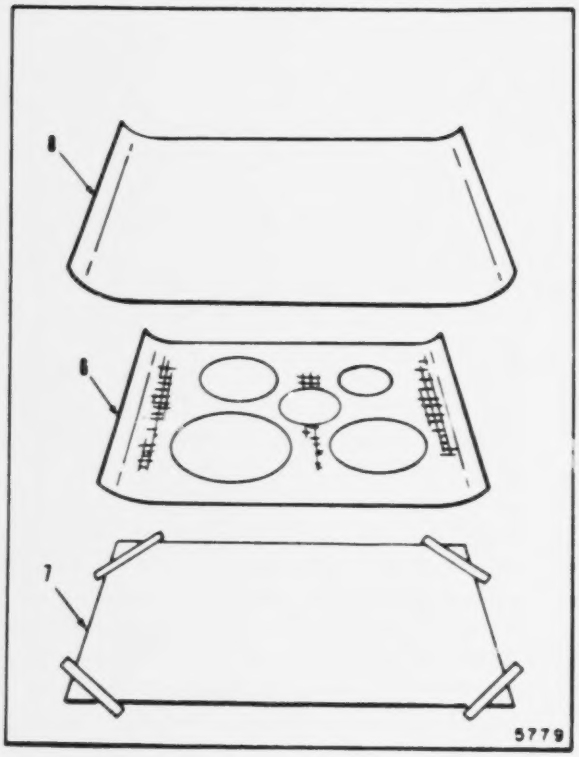
Weigh and mix resin and hardener accurately to produce acceptable bond.

   a. Weigh 101 parts of resin (E47) and 14 parts of hardener (E192).

NOTE

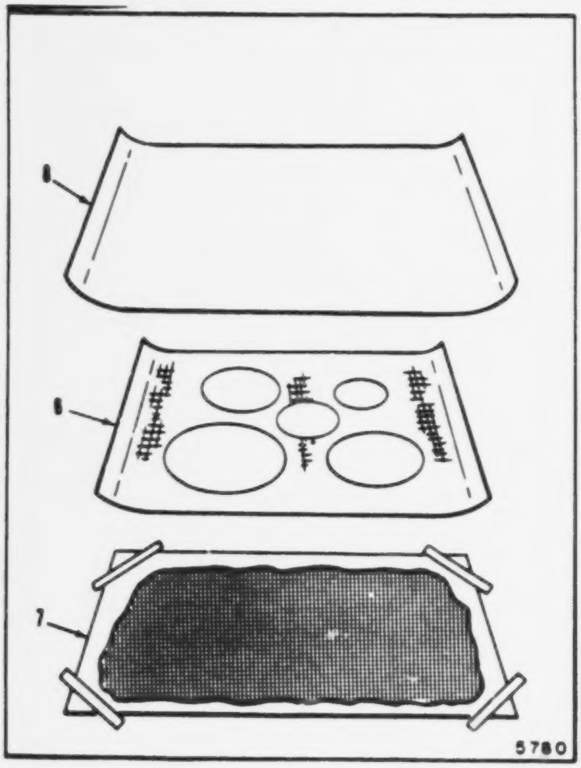
Working life of mixed adhesive is 30 minutes .

   b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).



PREPARE GLASS CLOTH

14. **Spread adhesive mixture** prepared in step 13 **on cellophane (E98) (7)** taped down in step 12. **Place piece of glass cloth (E132.1 or E132.2) (6)** cut in step 11. **in adhesive.**
15. **Cover glass cloth (6) with second piece of cellophane (8).**
16. **Press on top layer of cellophane (8).** Use a roller. Continue **until glass cloth (6) is saturated with adhesive mixture** and all entrapped air is squeezed out.



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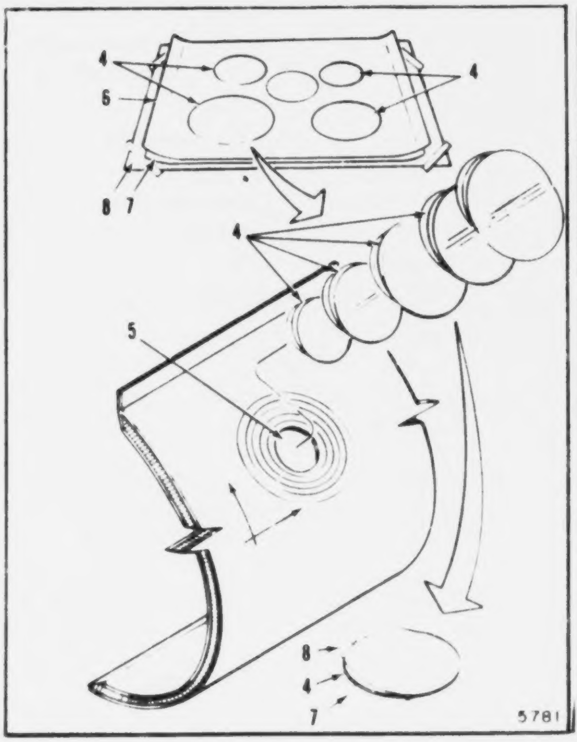
2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

NOTE

Cellophane stops fraying of glass cloth edges while cutting.

17. **Cut glass cloth (6) into pieces (4)** as determined in step 9. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (7 or 8). Cut through it.
18. **Coat cleaned area around cutout (5) with adhesive mixture** prepared in step 13.
19. **Remove cellophane (7) from one side of smallest cloth piece (4). Place exposed face of piece in bottom of cutout (5).** Position piece so that weave of cloth runs horizontally and vertically on pod. Keep equal overlap on all sides.
20. Apply light pressure over surface of installed piece (4) to remove wrinkles and entrapped air. Remove cellophane (7) from top of piece.
21. **Remove cellophane (7) from bottom of next larger piece (4). Apply piece over installed piece** with equal overlap on all sides.
22. **Repeat steps 19. and 20. for remaining pieces (4). Remove cellophane (8)** from top of last piece.



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2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

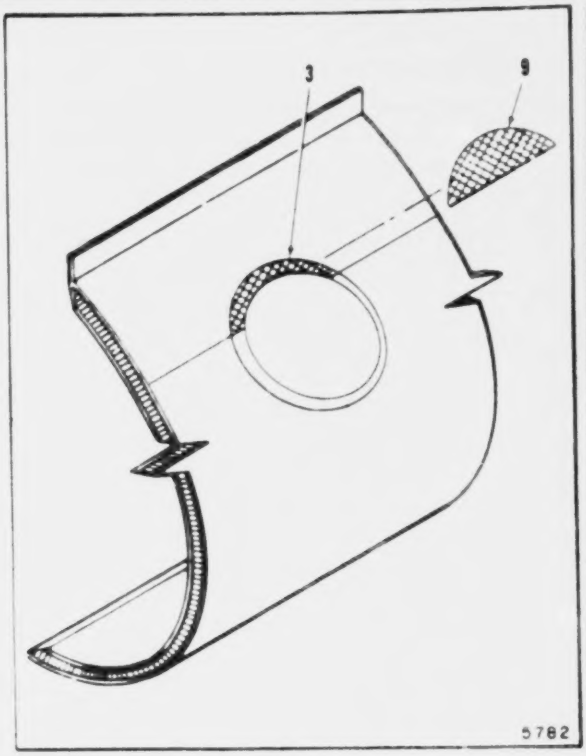
23. **If more than 1 square inch of wire mesh (3) was removed, replace it** as follows:

    a. Cut a piece of wire mesh (E453.1) (9) large enough to overlap existing mesh (3) 1 inch in all directions.

    b. Brush a coat of adhesive mixture prepared in step 13. over repair area and existing mesh (3).

    c. Seat replacement mesh (9) over repair area and existing mesh (3). Make sure mesh is in firm contact over entire 1-inch overlap.

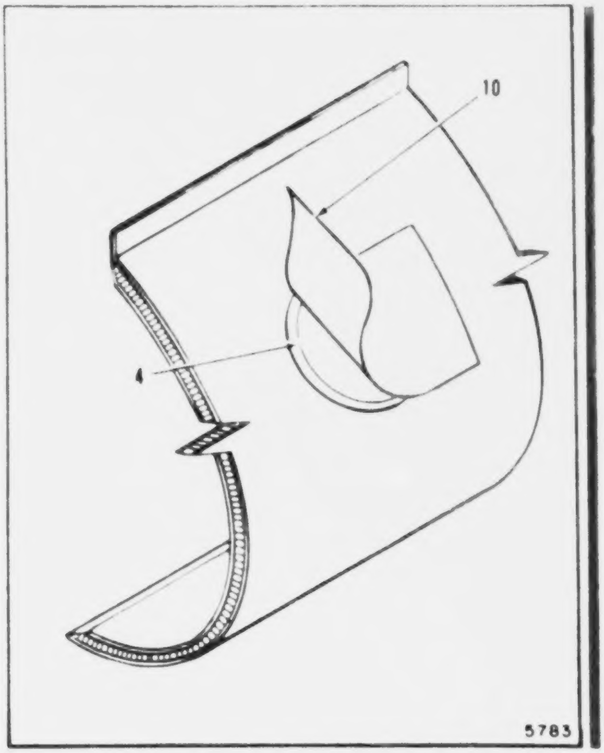
    d. Brush smooth coat of adhesive mixture over replacement mesh (9). Fair adhesive to pod skin.



BOND REPAIR

24. **Cover repair area with peel ply (E270) (10)** to overlap area by at least 1 inch.

25. **Fair edges of patch to contour of pod.** Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (4) are imbedded in adhesive.



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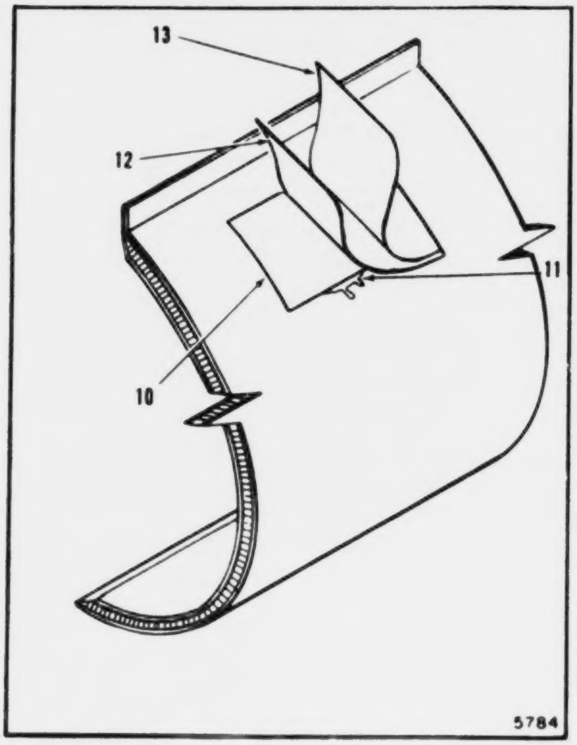
2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

26. Wipe off any adhesive squeezeout (11) from around peel ply (10).
27. **Cover peel ply (10) with a sheet of teflon-impregnated fabric (E170) (12).** Sheet shall be large enough to overlap peel ply (10) by 1 inch in all directions.
28. **Cover teflon-impregnated fabric (12) with fiberglass cloth (E132) (13).**



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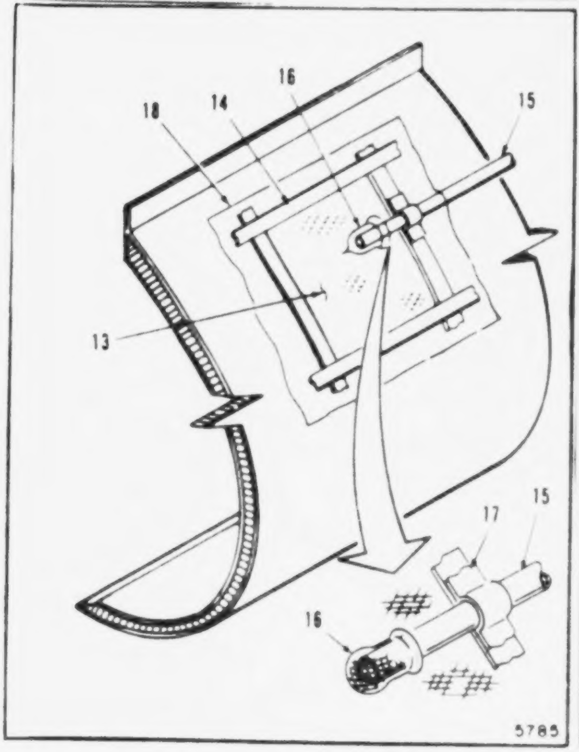
2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2



29. **Surround repair area with sealing tape (E396) (14).** Leave at least 1 inch between cloth (13) and tape on all sides.
30. Wrap end of tube (15) with two layers of fiberglass cloth (E132) (16). Secure cloth to tube with masking tape (E388).
31. **Lay covered end of tube (15) on glass cloth (13).** Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (17) where it crosses surrounding tape. Form an airtight seal.
32. Press polyvinyl sheet (E284) (18) smoothly onto tape (14) to make airtight seal around repair area.
33. **Connect end of tube (15) to a vacuum pump.** Use rubber hose.
34. **Start vacuum pump.** Set pump for vacuum of 3 in. Hg. Check for leaks. Reposition polyvinyl sheet (18) or add tape (14 or 17) as needed.
35. Increase vacuum to 20 inches Hg. Maintain vacuum throughout adhesive cure.

CAUTION

Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

36. **Cure adhesive** at 150°F to 160°F (66°C to 71°C) for 2.5 hours. Use explosion-proof heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours. Vacuum may be removed after 8 hours.

37. Turn off vacuum pump.

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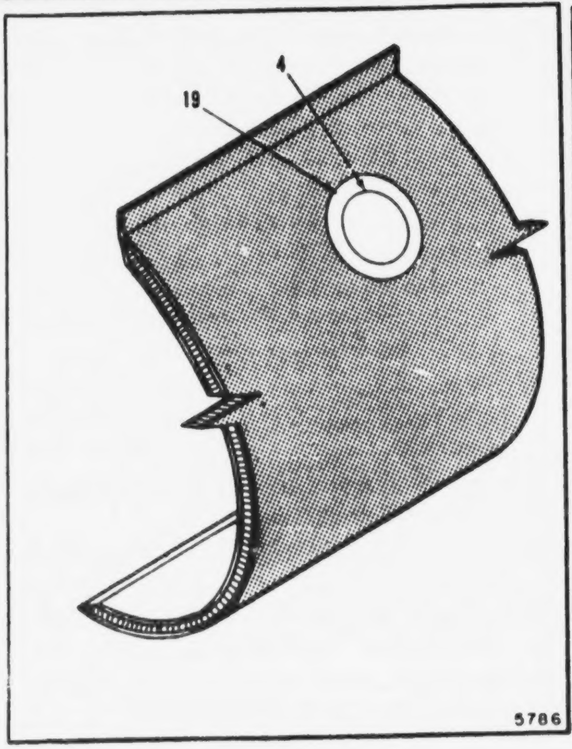
2-187.2 REPAIR COMPOSITE POD — SKIN DAMAGE OR DELAMINATION (Continued) 2-187.2

38. Remove vacuum bagging materials from repair area.
39. Check that patch (4) is free of pits, blisters, voids, and excess resin deposits. If squeezeout fairing (19) is not satisfactory, fair patch with adhesive. Follow step 12. to mix adhesive.

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish fuel pod (Task 2-187.7).



END OF TASK

2-187.3 REPAIR COMPOSITE POD — INSTALL SHUR-LOK INSERT 2-187.3

INITIAL SETUP

Applicable Configurations:

Helicopters With Composite Fuel Pods

Tools:

Airframe Repairer's Tool Kit, NSN 5180-00-323-4876

Vacuum Cleaner

Explosion-Proof Heat Lamp

Hypodermic Injector

Counterbore Set, NSN 5133-00-378-3813

Materials:

Adhesive (E47.1)

Gloves (E186)

Polyethylene Cup (E157)

Wood Spatula (E424)

Shurtab SLT600T3 (P/O SL601-3-4C)

Shurlock Guide Tool SLT600G3

Shurlock Insert SL601-3-4C

Temperature Indicating Strips (E413)

Cloths (E120)

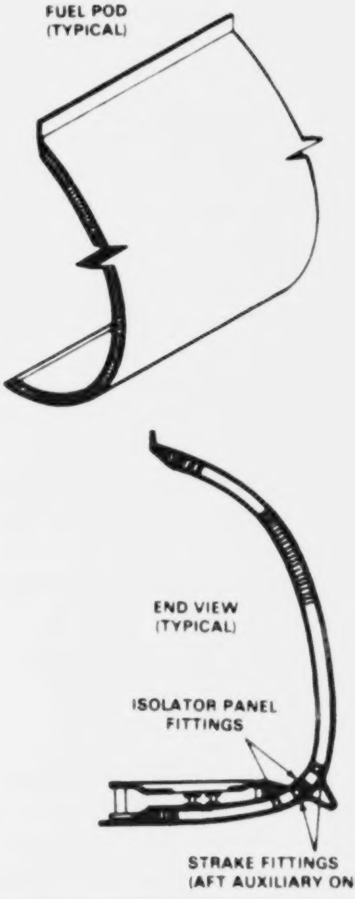
Personnel Required:

Aircraft Structural Repairer

Inspector

Equipment Condition:

As Required


FUEL POD
(TYPICAL)
END VIEW
(TYPICAL)
ISOLATOR PANEL
FITTINGS
STRAKE FITTINGS
(AFT AUXILIARY ONLY)
5787

GO TO NEXT PAGE

2-187.3 REPAIR COMPOSITE POD — INSTALL SHUR-LOK INSERT (Continued) 2-187.3

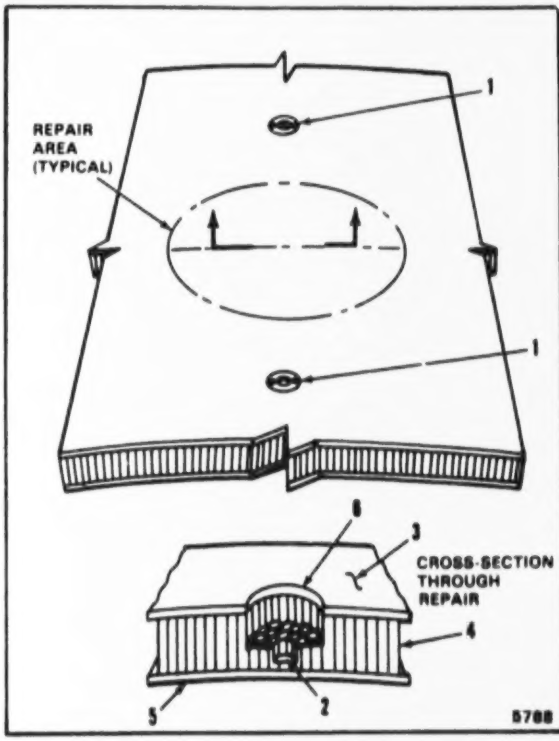
PREPARE POD

1. **Determine proper location for insert.** Note location of other inserts (1) or refer to another pod.

CAUTION

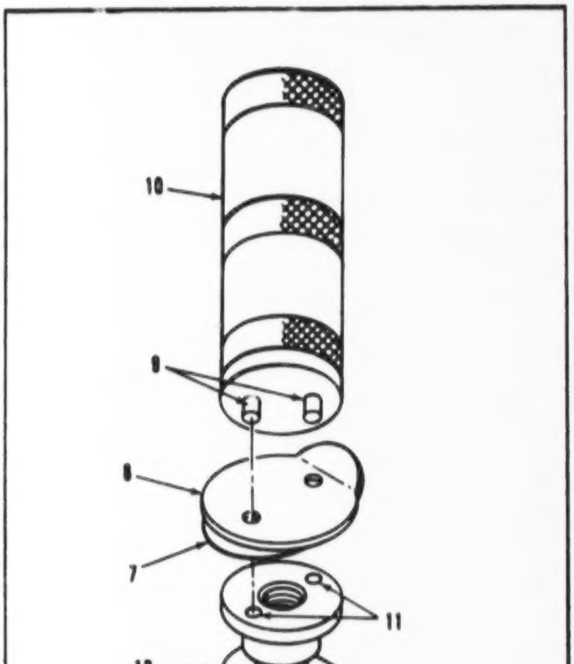
Drilling into opposite skin will require repair of the skin.

2. Carefully **drill pilot hole (2)** through skin (3) and into core (4) at proper location. Use 1/8-inch drill. Do not drill into opposite skin (5).
3. **Counterbore to depth of pilot hole (2).** Use 9/16-inch drill. Do not drill into opposite skin (5).
4. **Remove core material (4)** from hole (6) to depth of opposite skin (5). Use 9/16-inch drill, turned by hand.
5. Remove drilling residue from hole (6). Use a vacuum cleaner.



PREPARE INSERT

6. **Remove paper backing (7) from tab (8). Place tab on pins (9) of guide tool (10) with adhesive face away from tool.**
7. Align holes (11) in insert (12) with pins (9) on tool (10). **Press insert firmly against adhesive side of tab (8).**
8. Remove tool (10).



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2-187.3 REPAIR COMPOSITE POD — INSTALL SHUR-LOK INSERT (Continued) 2-187.3

MIX ADHESIVE

9. Prepare adhesive (E47.1). Weigh 100 parts of resin part A and 25 parts of hardener part B. Use trip balance.
10. Mix adhesive parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424).

NOTE

Working life of adhesive is about 30 minutes .

INSTALL INSERT

11. **Fill hole (6) about half full** of mixed adhesive (E47.1) .
12. **Install insert (12)** in center of hole (6). Press tab (8) against skin (3) to imbed insert in adhesive (13).

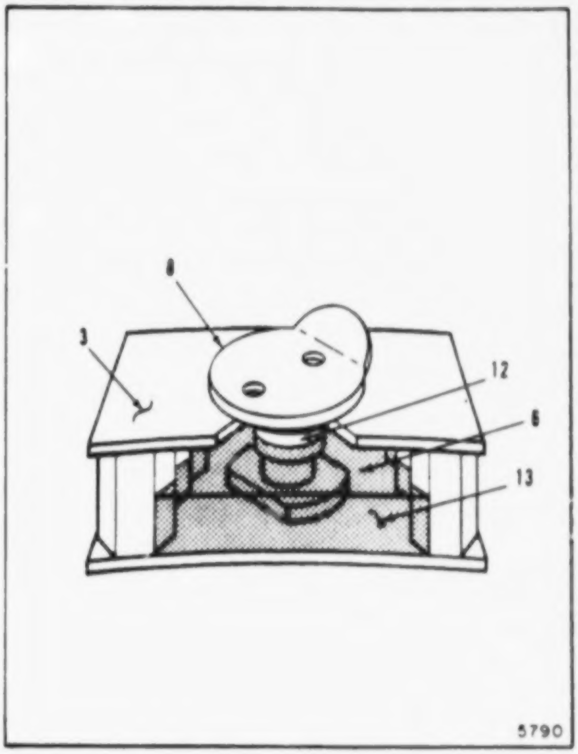
CAUTION

Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

13. **Cure adhesive (13)** at 150° to 160°F (66° to 71°C) for 2 hours . Use explosion-proof heat lamp set at 11 to 12 inches from insert (12). Monitor temperature with temperature indicating strips (E424).

NOTE

Serviceable cure can be achieved without heat at 70° to 80°F (21° to 27°C) in 24 hours .



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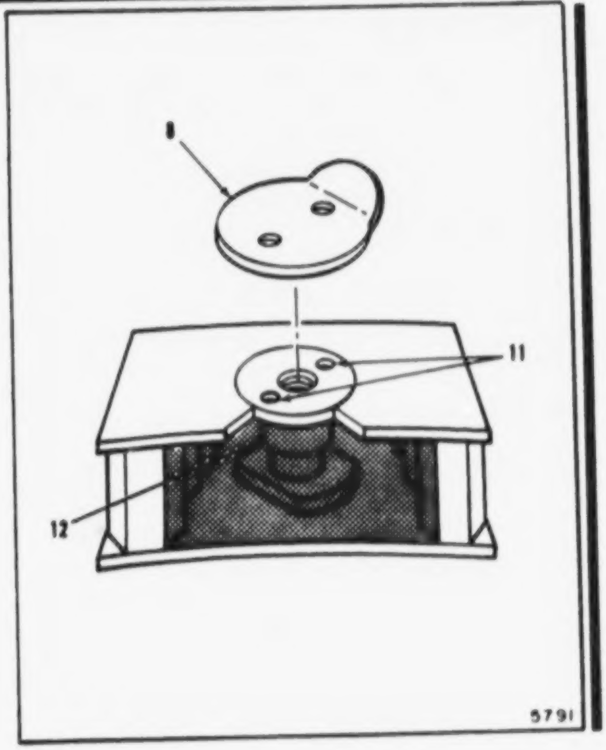
2-187.3 REPAIR COMPOSITE POD — INSTALL SHUR-LOK INSERT (Continued) 2-187.3

14. **Remove tab (8).**
15. **Inject adhesive mixture** through either hole (11) at top of insert (12). Use hypodermic injector. Continue to inject mixture until it flows from other hole (11).
16. Wipe off excess adhesive from top of insert (12). Use cloths (E120).
17. **Cure adhesive mixture** as in step 13.

INSPECT



FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES 2-187.4

INITIAL SETUP

Applicable Configurations:
Helicopters With Composite Fuel Pods

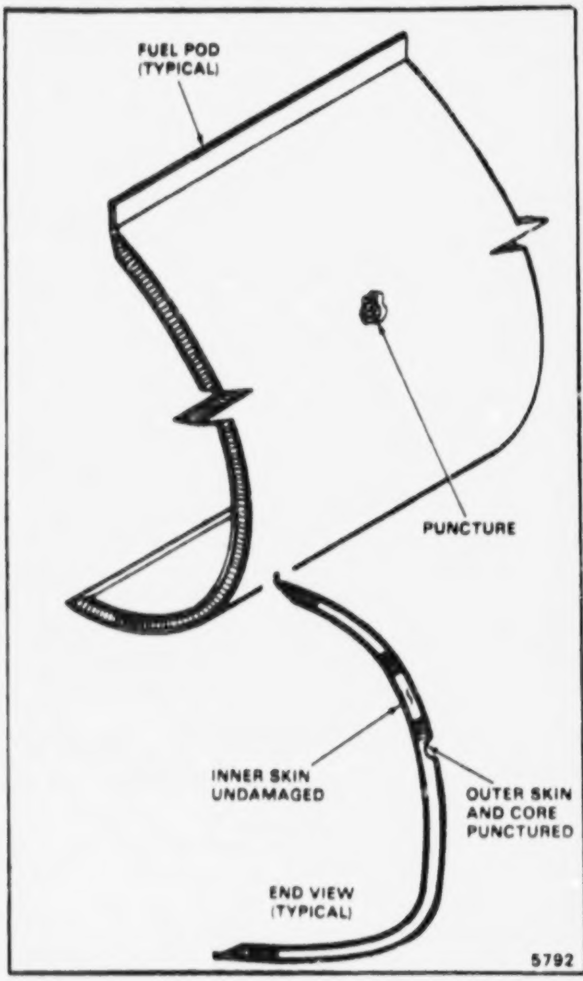
Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Scissors
Explosion-Proof Heat Lamp, 250 Watt
Roller
Vacuum Cleaner
Vacuum Pump

Materials:
Abrasive Paper (E6)
Acetone (E20)
Gloves (E186)
Cloths (E120)
Temperature Indicating Strips (E413)
Abrasive Paper (E8)
Template Paper (E263)
Masking Tape (E388)
Glass Cloth (E132)
Phenolic Microballoons (E274.1)
Resin (E47)
Hardener (E192)
Cellophane (E98)
Glass Cloth 181-550 (E132.1) or
Glass Cloth 181-77 (E132.2)
Polyethylene Cup (E157)
Wood Spatula (E424)
Peel Ply (E270)
Teflon-Impregnated Fabric (E170)
Fiberglass Cloth (E132)
Polyvinyl Sheet (E284)
Sealing Tape (E396)
Temperature Indicating Strips (E413)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-187.1

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Fuel Tank Prepared for Repair (Task 2-187.1)



General Safety Instructions:

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

REMOVE DAMAGE

NOTE

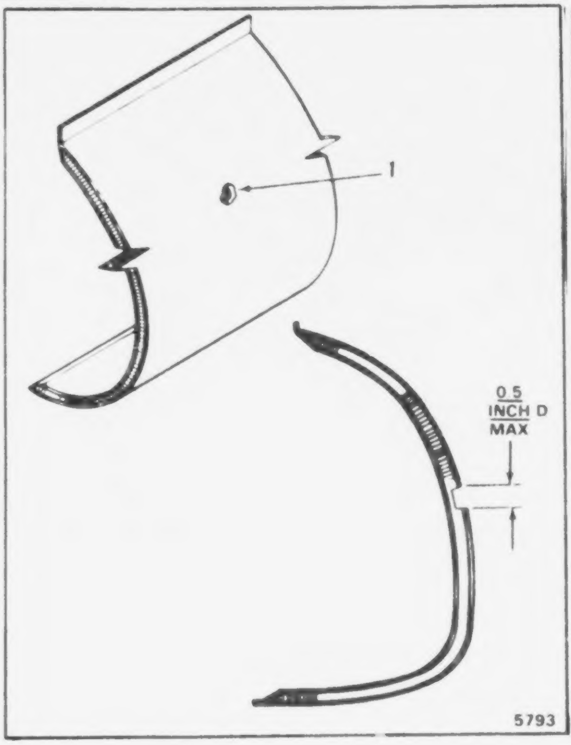
This repair limited to punctures 0.5 inch diameter or less through top skin and core.

1. **Remove loose fragments** and debris from damaged area.

CAUTION

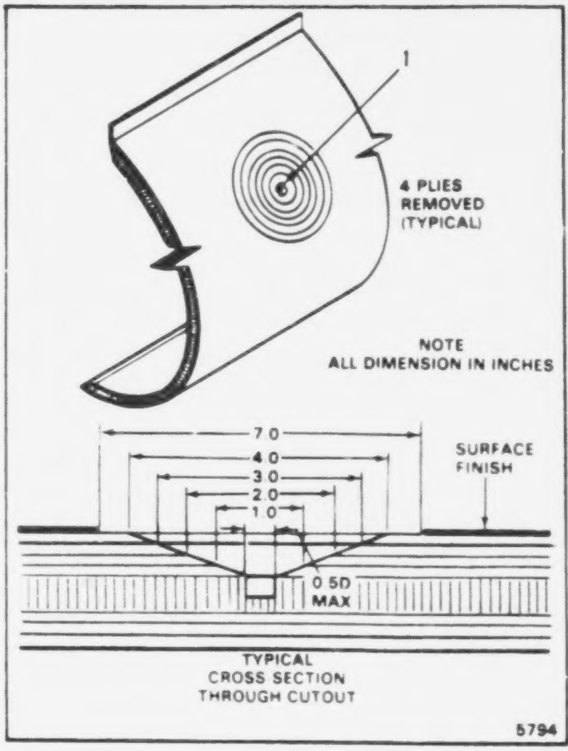
Be careful not to drill through pod.

2. **Clean out hole (1)** to depth of core damage. Use a drill. Do not exceed 0.5 inch diameter.



2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

3. **Determine number of plies cut through on skin (2).** (Refer to Task 2-187.1.) **Mask off area around hole (1) equal in diameter to at least 1.0 inch for each ply removed plus an additional 2.0 inches .** Use template paper (E263) and masking tape (E388).
4. **Remove finish from masked area.** Use sanding block and abrasive paper (E6). Use acetone (E20) if needed to soften finish. Wear gloves (E186).
5. Complete finish removal with abrasive paper (E8). In area of wire mesh, do not sand through mesh. (Refer to Task 2-187.1 for mesh location.)
6. **Taper cleaned area down to hole (1)** 0.5 inch for each skin ply removed. Leave at least 1.0 inch between outer edge of taper and border of cleaned area.
7. **Remove sanding dust** from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloths. Do not touch cleaned area with bare hands.



TYPICAL CROSS SECTION THROUGH CUTOUT

FILL PUNCTURE

8. **Prepare resin mixture** as follows:
   a. Weigh 101 parts of resin (E47), 14 parts of hardener (E192) and 30 parts phenolic microballoons (E274.1).

   NOTE

   Working life of mixed resin is 30 minutes.

   b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

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2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

9. **Pour resin mixture into hole (1).** Work out air bubbles with wood spatula (E424).

CAUTION

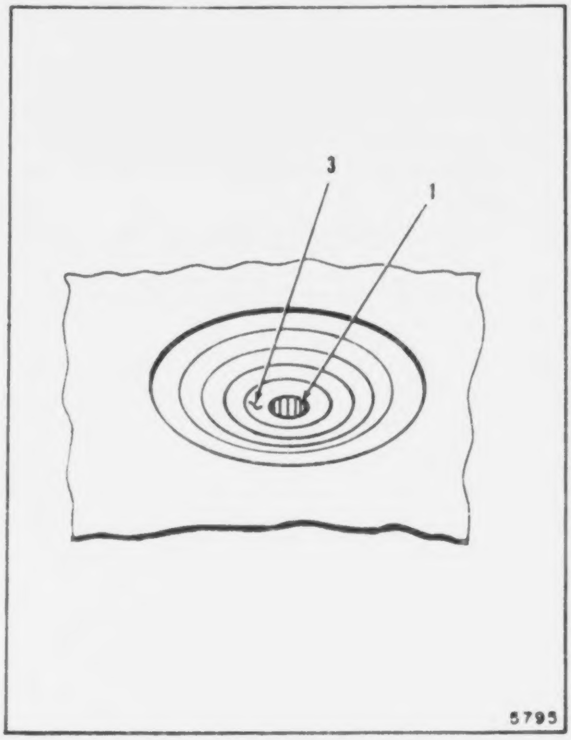
Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

10. **Cure resin** at 150° to 160°F (66° to 71°C) for 2.5 hours . Use explosion-proof heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70° to 80°F (21° to 27°C) in 24 hours . Vacuum may be removed after 8 hours .

11. **Fair cured resin** to bottom of tapered surface (3) within 0.10 inch . Use abrasive paper (E8).



PREPARE GLASS CLOTH

CAUTION

Wear gloves (E186) for the remaining steps. Bare hands will contaminate materials, causing poor bond.

12. **Sand cleaned surface** surrounding resin repair. Use abrasive paper (E9).
13. **Remove sanding dust** from repair area. Use a vacuum cleaner. **Clean masked area with acetone (E20)** and clean cloths (E120). Wipe area dry with clean, dry cloths.

GO TO NEXT PAGE

2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

14. **Determine number and size of pieces of glass cloth** (E132.1) or (E132.2) (4) **needed for repair** as follows:

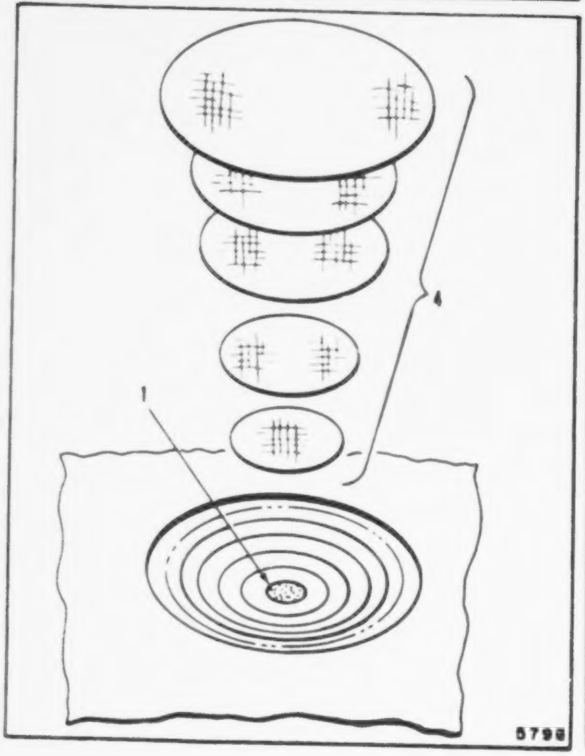
    a. Number of pieces (4) is equal to one more than the number of plies removed. (Refer to para 2-187.1.)

    b. Smallest piece shall be large enough to overlap resin-filled hole (1) 0.5 inch.

    c. Each additional piece shall be large enough to overlap the previous piece by 0.5 inch.

    d. All pieces shall be oriented so that weave of cloth will run horizontally and vertically on pod.

15. Check that finish on pod is removed for at least 0.5 inch more all around than size determined for largest piece of cloth.



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2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

16. **Cut a piece of glass cloth (E132) (5) large enough for cutting the number of pieces (4) as needed.**

17. **Cut two pieces of cellophane (E98) (6 and 7)** at least 1 inch larger all around then piece of cloth (5) cut in step 16. **Fasten one piece to a smooth flat surface.** Use masking tape (E388).

18. **Prepare adhesive mixture** as follows:

NOTE

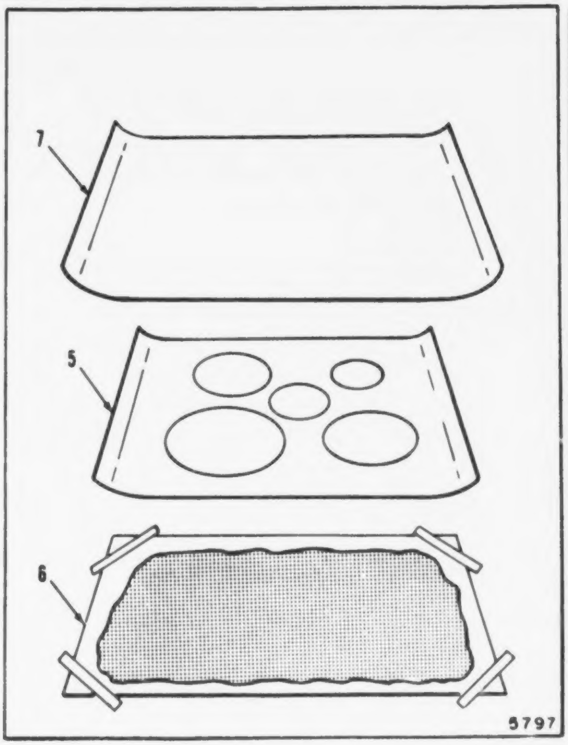
Weigh and mix resin and hardener accurately to produce acceptable bond.

a. Weigh 101 parts of resin (E47) and 14 parts of hardener (E192).

NOTE

Working life of mixed adhesive is 30 minutes .

b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).



19. **Spread adhesive mixture over taped piece of cellophane (E98) (6). Place piece of glass cloth (E132.1 or E132.2) cut in step 16. in adhesive.**

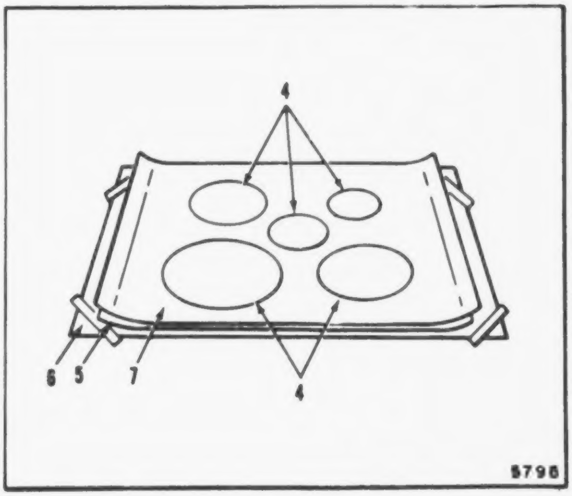
20. **Cover glass cloth (5) with second piece of cellophane (E98) (7).**

21. **Press on top layer of cellophane (7).** Use a roller. Continue **until glass cloth (5) is saturated** with adhesive mixture and all excess resin is squeezed out.

NOTE

Cellophane eliminates fraying of glass cloth edges while cutting.

22. **Cut glass cloth (5) into pieces (4) as determined in step 14.** Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (6 and 7). Cut through it.



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2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

INSTALL GLASS CLOTH

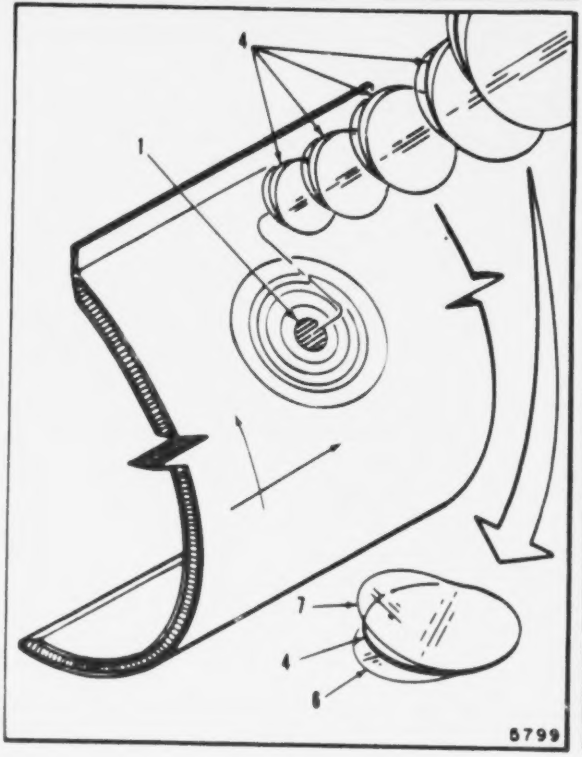
23. **Coat cleaned area around filled hole (1) with adhesive mixture** prepared in step 18.

24. **Remove cellophane (6) from one side of smallest cloth piece (4). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of piece against filled hole (1).** Keep equal overlap all around.

25. Apply light pressure over surface of installed piece (4) to remove wrinkles and entrapped air.

26. **Remove cellophane (7) from installed piece (4) and one surface of next larger piece. Apply larger piece, position as in step 24., over installed piece** with equal overlap all around.

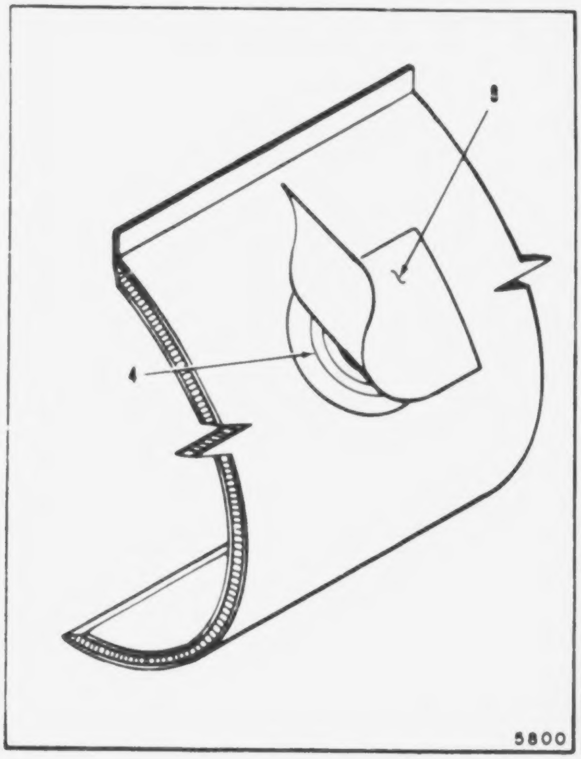
27. **Repeat steps 25. and 26.** for all remaining pieces (4).



BOND REPAIR

28. **Cover repair area with peel ply (E270) (8)** to overlap area by at least 1 inch .

29. **Fair edges of patch to contour of pod.** Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (4) are imbedded in adhesive.



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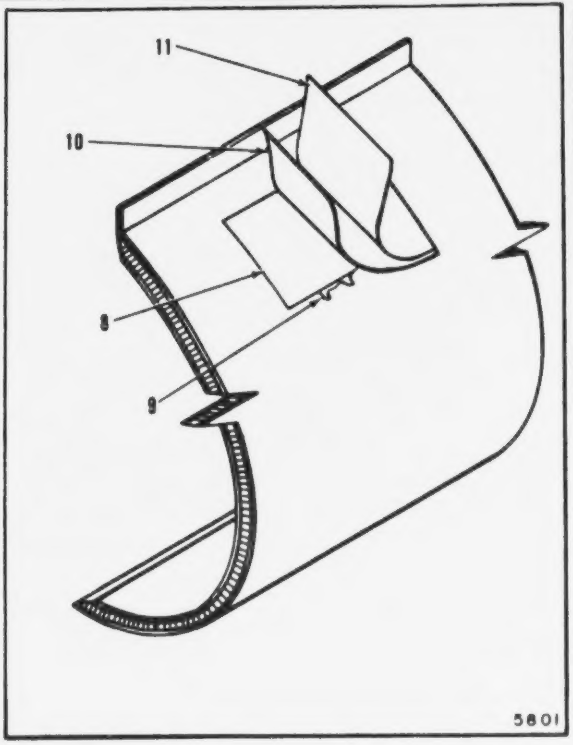
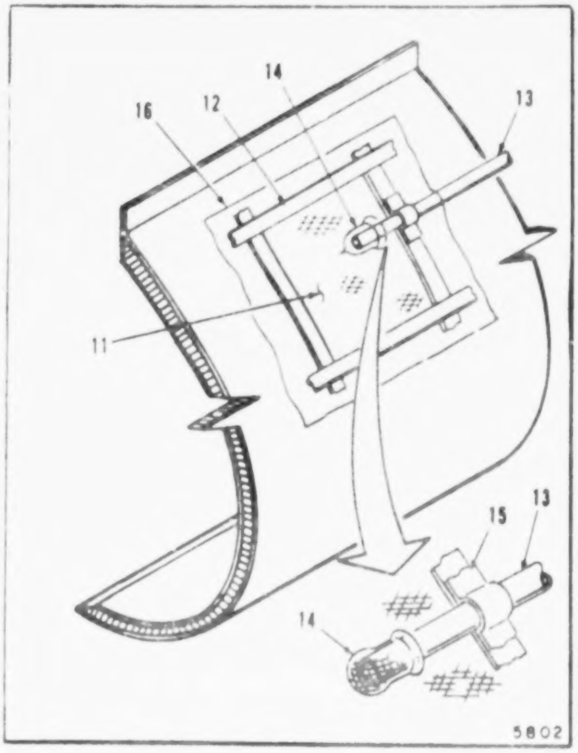
2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

30. Wipe off adhesive squeezeout (9) from around peel ply (8).
31. **Cover peel ply (8) with a sheet of teflon-impregnated fabric (E170) (10).** Make sheet large enough to overlap peel ply by 1 inch .
32. **Cover teflon-impregnated fabric (10) with fiberglass cloth (E132) (11).**



2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

33. **Surround repair area with sealing tape (E396) (12).** Leave at least 1 inch between cloth (11) and tape on all sides.
34. Wrap end of tube (13) with two layers of fiberglass cloth (E132) (14). Secure cloth to tube with masking tape (E388).
35. **Lay covered end of tube (13) on glass cloth (11).** Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (15) where it crosses surrounding tape. Form an airtight seal.
36. Press polyvinyl sheet (E284) (16) smoothly onto tape (12) to make airtight seal around repair area.
37. **Connect end of tube (13) to a vacuum pump.** Use rubber hose.
38. Start vacuum pump. Set pump for vacuum of 3 in. Hg . Check for leaks. Reposition polyvinyl sheet (16) or add tape (12 or 15) as needed.
39. Increase vacuum to 20 inches Hg . Maintain vacuum throughout adhesive cure.



CAUTION

Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

40. **Cure adhesive** at 150°F to 160°F (66°C to 71°C) for 2.5 hours . Use explosion-proof heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours. Vacuum may be removed after 8 hours.

41. Turn off vacuum pump.

GO TO NEXT PAGE

2-187.4 REPAIR COMPOSITE POD — SKIN PUNCTURES (Continued) 2-187.4

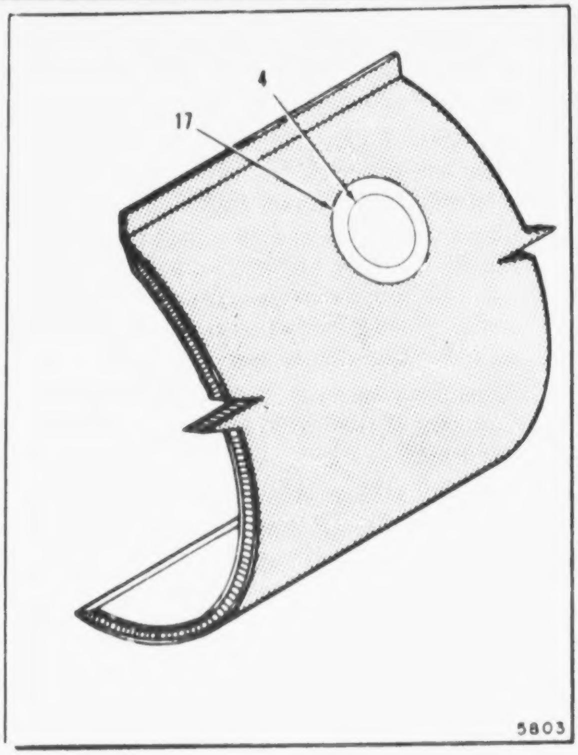
42. Remove vacuum bagging materials from repair area.

43. Check that patch (4) is free of pits, blisters, voids, and excess resin deposits. If squeezeout fairing (17) is not satisfactory, fair patch with adhesive. Follow step 18. to mix adhesive.

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish fuel pod (Task 2-187.7).



END OF TASK

2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) 2-187.5

INITIAL SETUP

Applicable Configurations:
Helicopters With Composite Fuel Pods

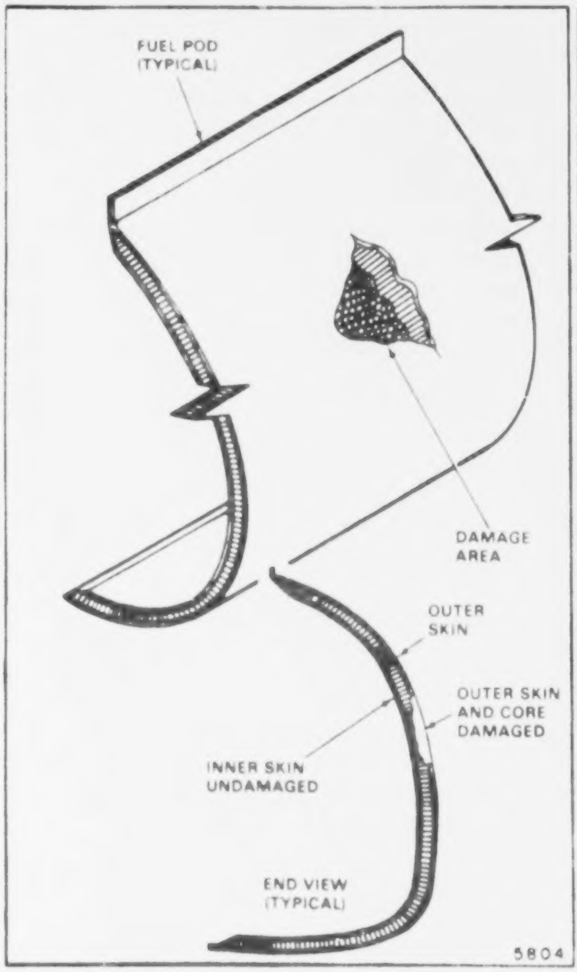
Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Straightedge
Pencil Compass
Router or
Hole Saw
Protective Clothing
Respirator
Vacuum Cleaner
Vacuum Pump
Roller
Scissors
Explosion-Proof Heat Lamp, 250 Watt

Materials:
Abrasive Paper (E9)
Masking Tape (E388)
Template Paper (E263)
Acetone (E20)
Cloths (E120)
Core Material,
HRH-10-3/16-4.0 (E150.1)
Core Material,
HRH-10/OX-3/16-4.0 (E150.2)
Aluminum (E70)
Adhesive, EA9309.3 NA (E40) or (E41)
Resin (E47)
Hardener (E192)
Peel Ply (E270)
Teflon-Impregnated Fabric (E170)
Glass Cloth (E132)
Sealing Tape (E396)
Polyvinyl Sheet (E284)
Gloves (E186)
Glass Cloth 181-150 (E132.1) or
Glass Cloth 181-77 (E132.2)
Polyethylene Cup (E157)
Wood Spatula (E424)
Wire Mesh (E453.1)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-187.1

Equipment Condition:
Off-Helicopter Task
Fuel Pod Prepared for Repair (Task 2-187.1)



General Safety Instructions:

WARNING

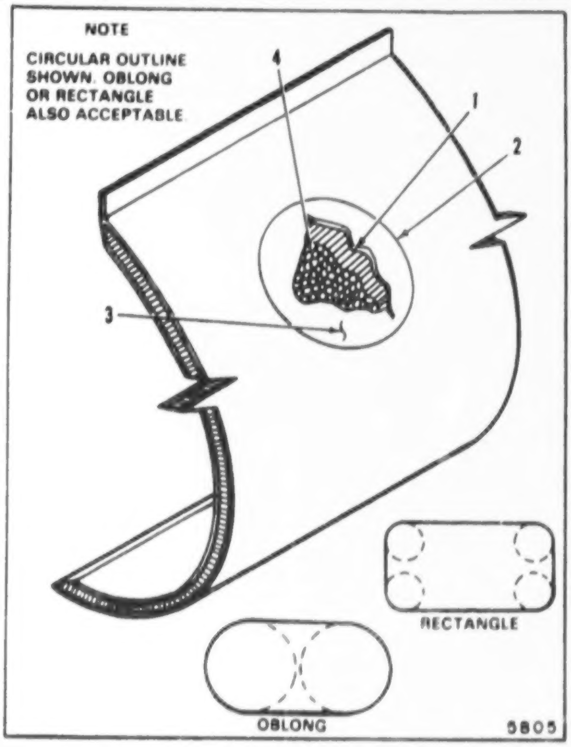
Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

REMOVE DAMAGE

1. Outline area of damage (1). Shape of outline (2) shall have no corners. A circle or oblong is preferred. Use pencil compass and straightedge.
2. **Remove damaged skin (3) and core (4)** within outline (2) with holesaw or router. If hole saw is used, go to step 4. If router is used, go to step 3.



NOTE

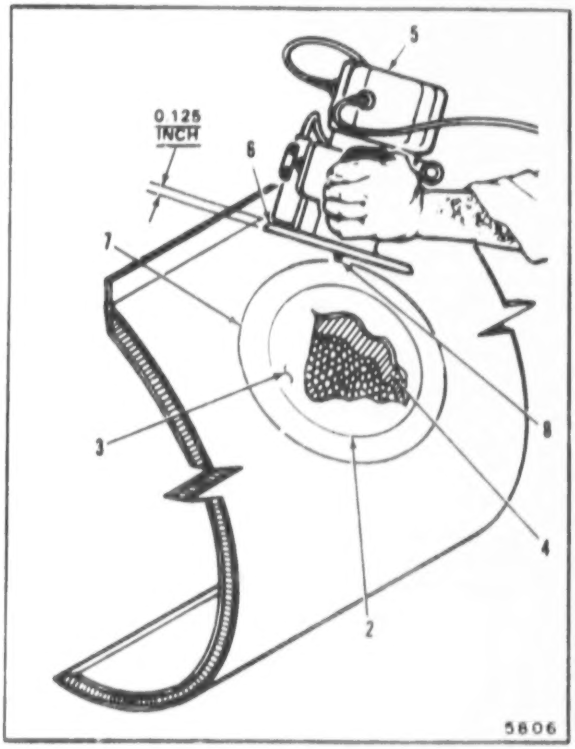
CIRCULAR OUTLINE SHOWN. OBLONG OR RECTANGLE ALSO ACCEPTABLE

3. **Cut through damaged skin (3) with router (5) as follows:**
   a. Measure radius of router base (6). Draw guide line (7) around repair area outline (2) at a distance equal to radius.
   b. Install router bit (8). Set depth equal to 0.125 inch .

WARNING

Wear goggles, respirator, and protective clothing when using router. Fiberglass particles will irritate eyes, lungs, and skin.

   c. Start router (5). Keep router under complete control. Grasp handles with both hands.
   d. Rest edge of router base (6) on pod so that bit (8) is centered on damaged area. Slowly lower router so that bit penetrates pod skin (3).



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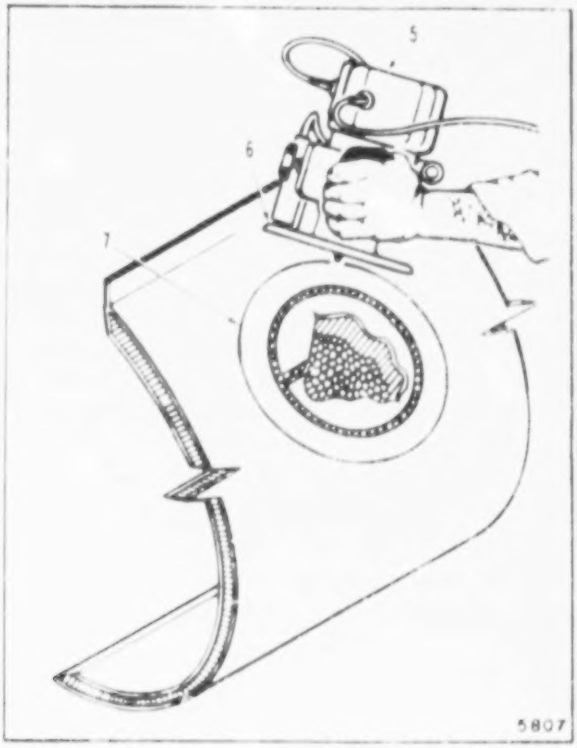
2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

e. Slowly move router (5) outward until router base (6) just touches guideline (7). Follow guideline around in a counterclockwise direction. Keep edge of base just touching guideline.

f. When cut is complete, move router (5) into center of repair area. Turn off router and remove it. Go to step 5.



4. Cut through damaged skin (3) with hole saw as follows:

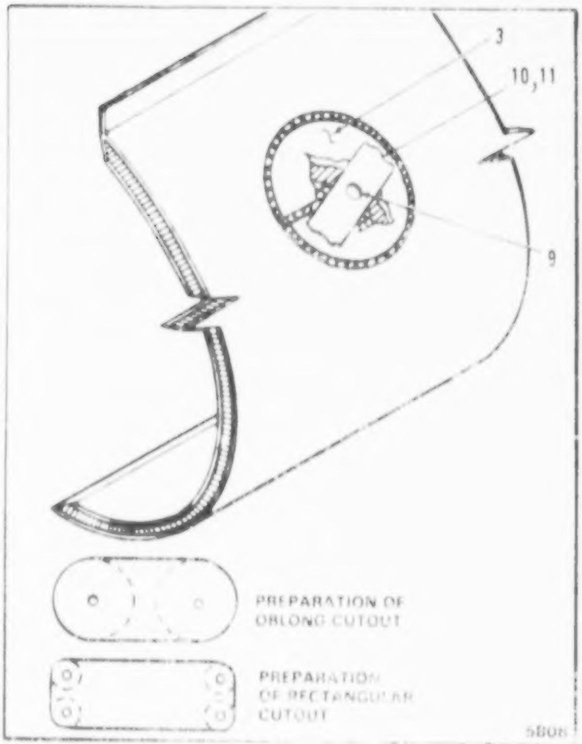
a. Drill pilot hole (9) at center of damaged area (1). Make hole the same size as center drill of hole saw. If damage does not allow drilling, cover area with several layers of template paper (E263) (10) and masking tape (E388) (11). Secure paper with tape.

NOTE

Hole saw shall be same diameter as curve of damage area outline.

b. Insert center drill of hole saw in pilot hole (9). Hold saw lightly against skin (3) and slowly turn it clockwise. Use wrench.

c. Turn saw until it goes through skin (3).


3
10,11
9
PREPARATION OF OBLONG CUTOUT
PREPARATION OF RECTANGULAR CUTOUT
5808

GO TO NEXT PAGE

5. **Remove damaged skin (3) and core (4)** from tank as follows:

   a. Peel off cut-out section of skin (3). Use pliers and chisel.

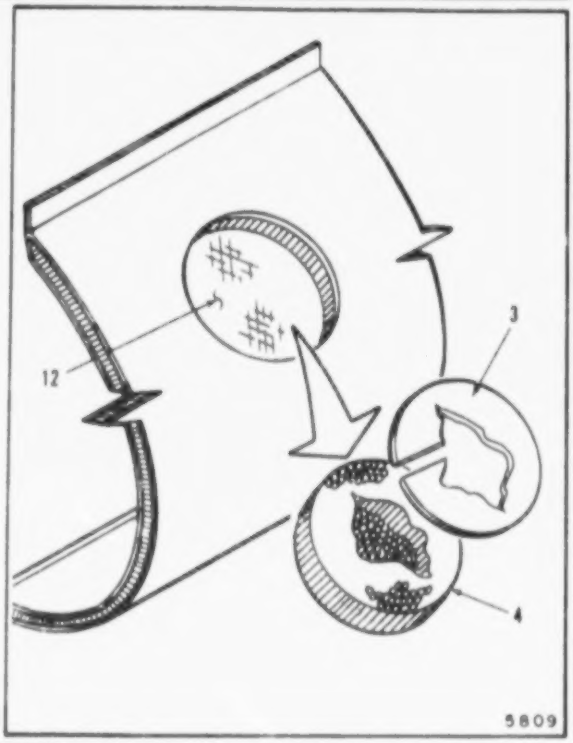
   CAUTION

   Do not cut or score opposite skin when removing damaged core.

   b. Cut through core (4) to opposite skin (12). Use pen knife with blunt point. Cut only deep enough to separate damaged core (4).

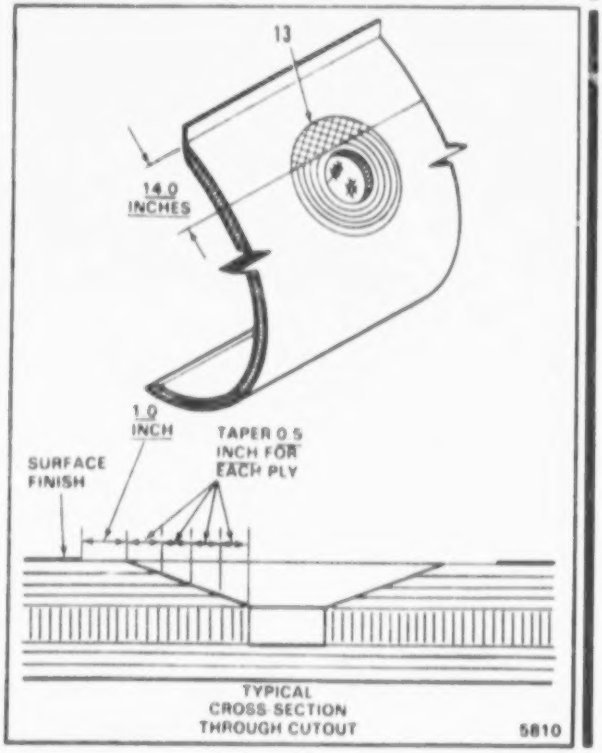
   c. Remove damaged core (4). Use pliers and chisel. Do not damage opposite skin (12).

   d. Sand skin (12) where core was removed. Use abrasive paper (E7).



PREPARE SURFACE

6. **Determine number of plies cut through on skin** of pod. (Refer to Task 2-187.1.) Mask off area around cutout equal to at least 0.5 inch in all directions for each ply removed plus an additional 1.0 inch . Use template paper (E263) and masking tape (E388).
7. **Remove finish from masked area.** Use sanding block and abrasive paper (E6). Use clean cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
8. Complete finish removal with abrasive paper (E8). In areas of wire mesh (13), do not sand through mesh. If mesh was removed, expose mesh for 1.0 inch around removed area.
9. **Taper edge of cutout** 0.5 inch for each skin ply removed. Leave at least 1.0 inch between outboard edge of taper and border of finish removal area.
10. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with acetone (E20) and clean cloths (E120). Wipe area dry with clean dry cloths.


13
14.0 INCHES
1.0 INCH
TAPER 0.5 INCH FOR EACH PLY
SURFACE FINISH
TYPICAL CROSS SECTION THROUGH CUTOUT
5810

GO TO NEXT PAGE

2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

PREPARE REPAIR MATERIALS

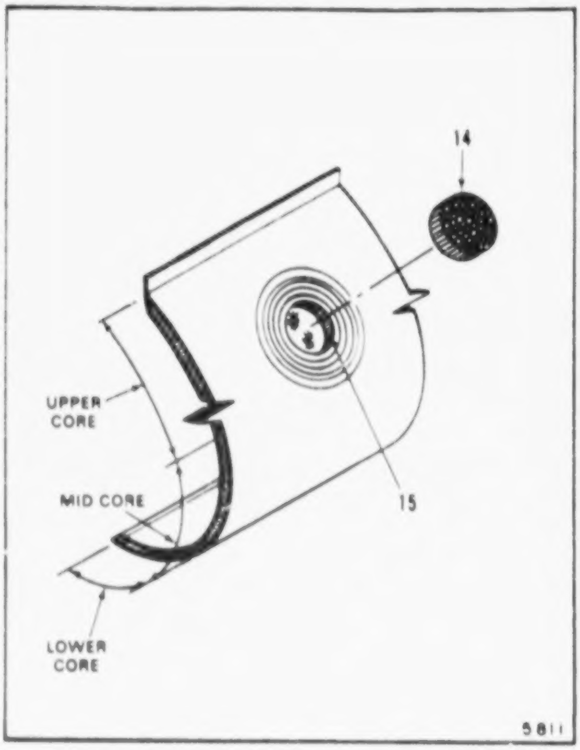
CAUTION

Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

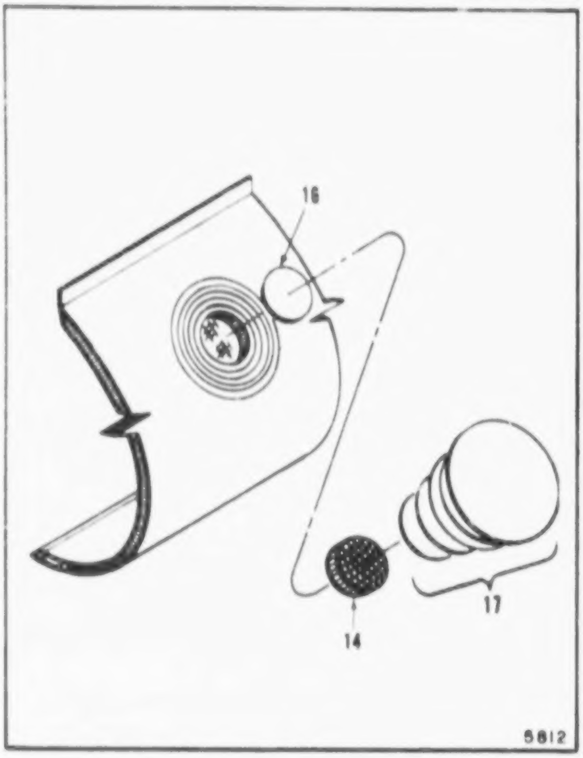
NOTE

Core material must be clean and dry for adhesive to hold.

11. **Make core plug (14) in shape of cutout, but 0.125 inch larger all around.** Orient ribbon in same direction as existing core (15). Use core material (E150.1) in upper and lower core areas. Use core material (E150.2) in middle core area. (Refer to Task 2-187.1.)



12. **Determine number and size of pieces of glass cloth (E132.1) or (E132.2) needed for repair.**
    a. One piece (16) shall be same size as cutout.
    b. Number of pieces (17) shall be equal to one more than number of plies removed. (Refer to Task 2-187.1.) Smallest piece shall be large enough to overlap core plug (14) 0.5 inch. Each additional piece shall be large enough to overlap previous piece by 0.5 inch in all directions.
13. Check that finish on pod is removed for at least 0.5 inch more in all directions than size determined for largest piece of cloth (17).



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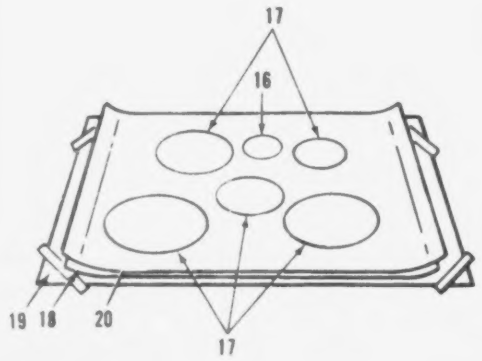
2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

14. **Cut one piece of glass cloth (E132.1) or (E132.2) (18) large enough for cutting the number of pieces (16 and 17) needed.**
15. **Cut two pieces of cellophane (E98) (19 and 20)** at least 1 inch larger all around than piece of glass cloth cut in step 14. **Fasten one piece to a smooth surface.** Use masking tape (E388).



MIX GLASS CLOTH ADHESIVE

16. **Prepare adhesive mixture** as follows:

NOTE

Weigh and mix resin and hardener accurately to produce good bond.

   a. Weigh 101 parts of resin (E47) and 14 parts of hardener (E192).

NOTE

Working life of mixed adhesive is 30 minutes .

   b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

MIX CORE ADHESIVE

NOTE

Working life of mixed adhesive is 30 minutes .

17. **Mix tube of adhesive (E40)**. If adhesive (E40) is not available, go to step 18.

CAUTION

Weigh and mix resin and hardener accurately to produce good bond.

18. **If adhesive (E40) is not available, prepare adhesive (E41) as follows:**
   a. Weigh 100 parts of resin and 23 parts of hardener.
   b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

GO TO NEXT PAGE

2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

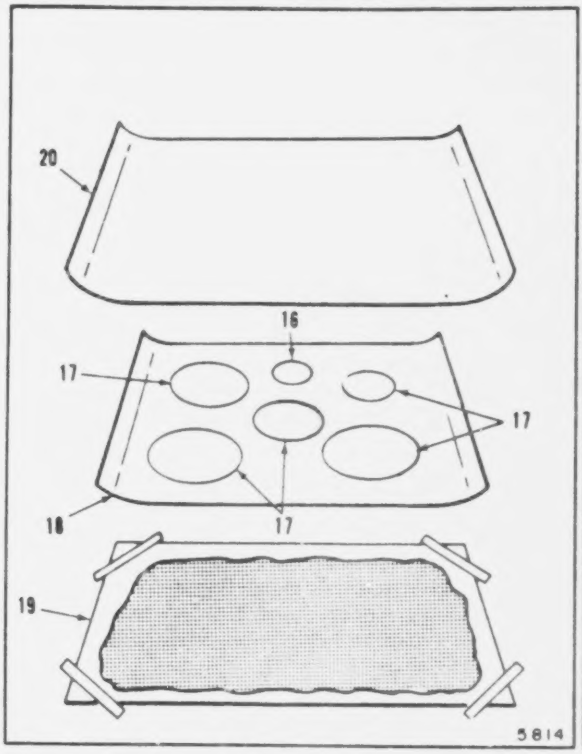
PREPARE GLASS CLOTH

19. **Spread adhesive mixture prepared in step 16. on cellophane (E98) (19) taped down in step 15. Place piece of glass cloth (E132.1) or (E132.2) (18) cut in step 14. in adhesive.**
20. **Cover glass cloth (18) with second piece of cellophane (20).**
21. **Press on top layer of cellophane (20).** Use a roller. Continue **until glass cloth (18) is saturated** with adhesive mixture and all entrapped air is squeezed out.

NOTE

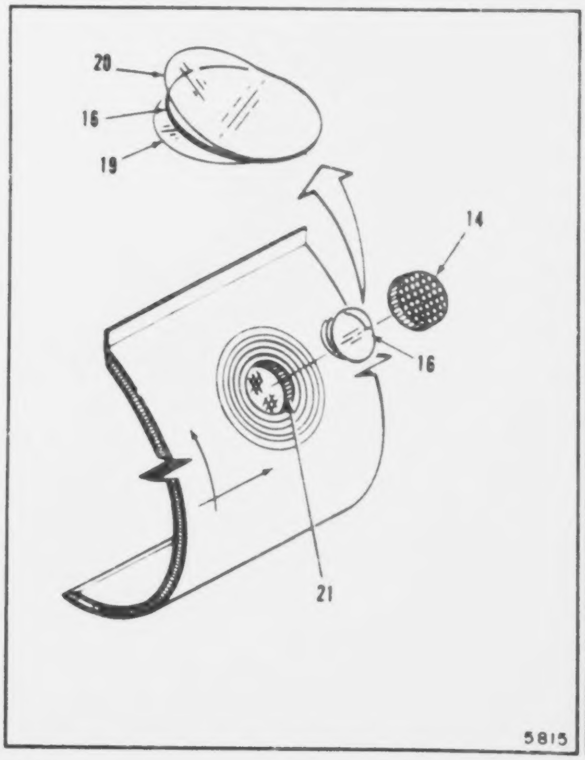
Cellophane decreases fraying of glass cloth edges while cutting.

22. **Cut piece (16) from glass cloth (18).** Cut it so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (19 and 20). Cut through it.



INSTALL CORE PATCH

23. **Remove cellophane (19) from one side of smallest cloth piece (16). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed surface of piece against opposite skin (12).**
24. Apply light pressure over surface of cloth piece (16) to remove wrinkles and entrapped air. Remove cellophane (20).
25. **Apply adhesive mixture** prepared in step 17. or 18. around edges of core plug (14) and undamaged core (21).
26. **Install core plug (14)** in cutout against cloth piece (16). Orient ribbon on plug in same direction as on undamaged core (21). Press plug firmly against cloth piece.



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2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

INSTALL GLASS CLOTH

27. **Cut glass cloth (18) into pieces (17) as determined in step 12.b.** Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (19 or 20). Cut through it.

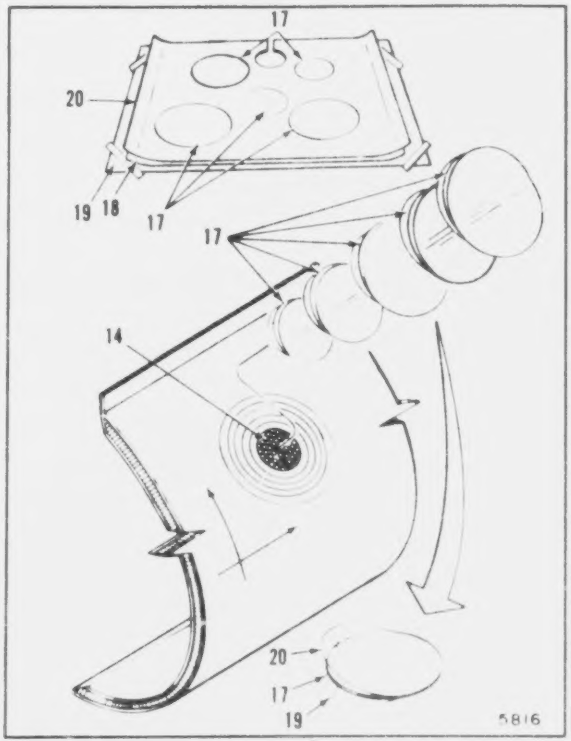
28. **Coat area around cutout with adhesive mixture** prepared in step 16.

29. **Remove cellophane (19) from one side of smallest cloth piece (17). Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of piece against core plug (14).** Keep equal overlap on all sides.

30. Apply light pressure over surface of piece (16) to remove wrinkles and entrapped air. Be careful not to move core plug (14).

31. **Remove cellophane (20) from installed piece (16). Remove cellophane (19) from bottom of next larger piece. Apply larger piece position as in step 29., over installed piece** with equal overlap on both sides.

32. **Repeat steps 30. and 31.** for all remaining pieces (17). Remove cellophane (20) from last piece.



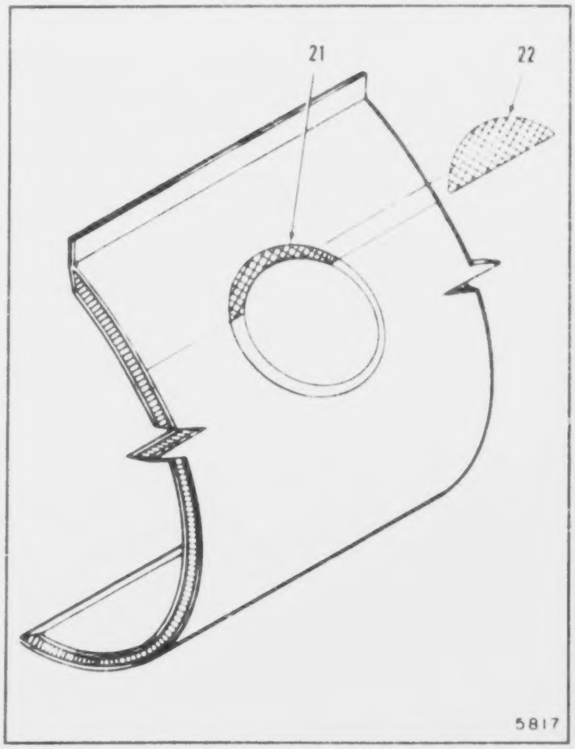
33. **If more than 1 square inch of wire mesh (21) was removed, replace it** as follows:

    a. Cut a piece of wire mesh (E453.1) (22) large enough to overlap existing mesh (21) 1 inch.

    b. Brush a coat of adhesive mixture prepared in step 16. over repair area and existing mesh (21).

    c. Seat replacement mesh (22) over repair area and existing mesh (21). Make sure mesh is in firm contact over entire 1-inch overlap.

    d. Brush smooth coat of adhesive (E40 or E41) over replacement mesh (22). Fair adhesive to tank skin.



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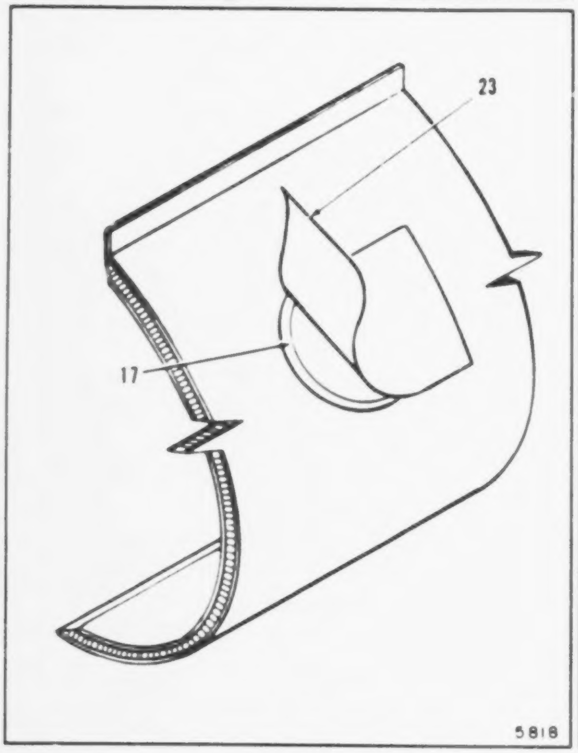
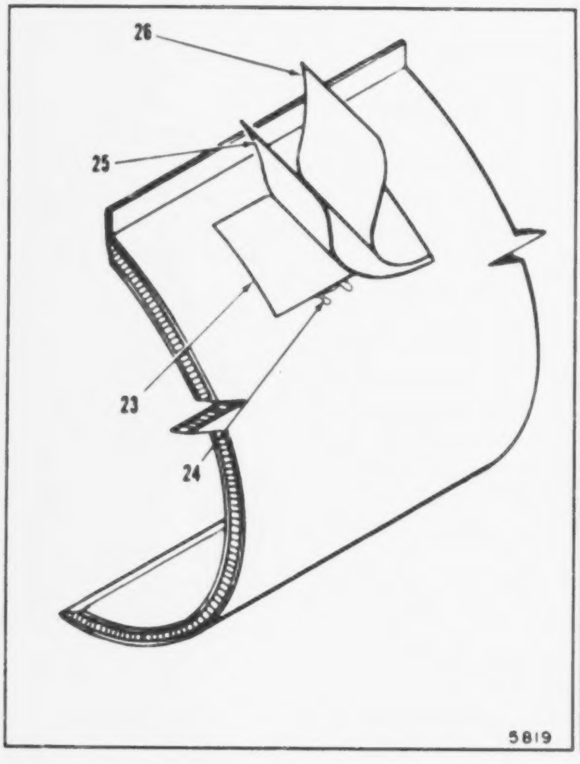
2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

BOND REPAIR

34. **Cover repair area with peel ply (E270) (23)** to overlap area by at least 1 inch .
35. **Fair edges of patch to contour of pod.** Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth (17) are imbedded in adhesive.



36. Wipe off adhesive squeezeout (24) from around peel ply (23).
37. **Cover peel ply (23) with a sheet of teflon-impregnated fabric (E170) (25).** Make sheet large enough to overlap peel ply by 1 inch .
38. **Cover teflon-impregnated fabric (25) with fiberglass cloth (E132) (26).**



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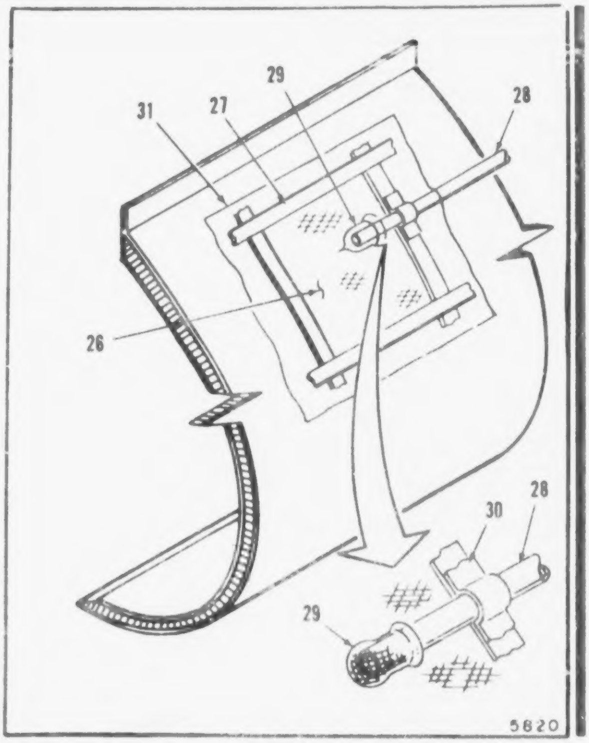
2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

39. **Surround repair area with sealing tape (E396) (27).** Leave at least 1 inch between cloth (26) and tape on all sides.
40. Wrap end of tube (28) with two layers of fiberglass cloth (E132) (29). Secure cloth to tube with masking tape (E388).
41. **Lay covered end of tube (28) on glass cloth (26).** Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (30) where it crosses surrounding tape. Form an airtight seal.
42. Press polyvinyl sheet (E284) (31) smoothly onto tape (27) to make airtight seal around repair area.
43. **Connect end of tube (28) to a vacuum pump.** Use rubber hose.
44. Start vacuum pump. Set pump for vaccum of 3 in. Hg . Check for leaks. Reposition polyvinyl sheet (31) or add tape (27 or 30) as needed.
45. Increase vacuum to 20 inches Hg . Maintain vaccum throughout adhesive cure.



CAUTION

Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

46. **Cure adhesive at 150°F to 160°F (66°C to 71°C)** for 2.5 hours . Use explosion-proof heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

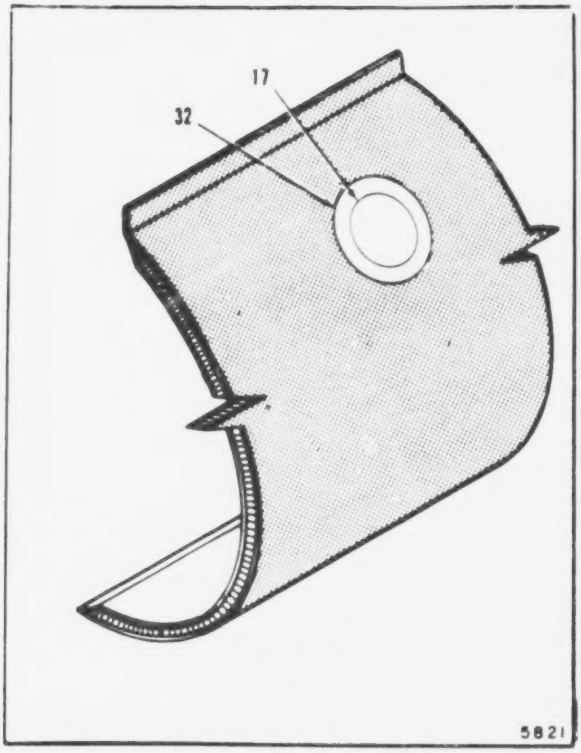
Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours . Vacuum may be removed after 8 hours .

47. Turn off vacuum pump.

GO TO NEXT PAGE

2-187.5 REPAIR COMPOSITE POD — SINGLE SKIN AND CORE (AVIM) (Continued) 2-187.5

48. Remove vacuum bagging materials from repair area.
49. Check that patch (17) is free of pits, blisters, voids, and excess resin deposits. If squeezeout fairing (32) is not satisfactory, fair patch with adhesive. Follow step 16. to mix adhesive.



INSPECT

FOLLOW-ON MAINTENANCE:

Refinish fuel pod (Task 2-187.7).

END OF TASK

2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) 2-187.6

INITIAL SETUP

Applicable Configurations:
Helicopters With Composite Fuel Pods

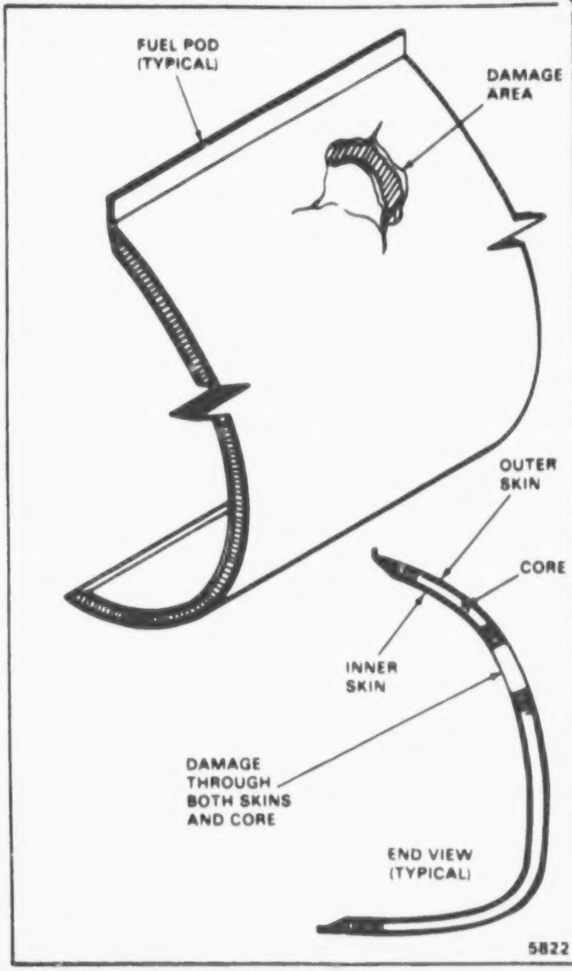
Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876
Straightedge
Pencil Compass
Router or
Hole Saw
Protective Clothing
Respirator
Vacuum Cleaner
Vacuum Pump
Roller
Scissors
Explosion-Proof Heat Lamp, 250 Watt

Materials:
Abrasive Paper (E9)
Template Paper (E263)
Masking Tape (E388)
Acetone (E20)
Cloths (E120)
Core Material,
HRH-10-3/16-4.0 (E150.1)
Core Material,
HRH-10/OX-3/16-4.0 (E150.2)
Aluminum (E70)
Adhesive, EA9309.3 NA (E40) or (E41)
Resin (E47)
Hardener (E192)
Peel Ply (E270)
Teflon-Impregnated Fabric (E170)
Glass Cloth (E132)
Sealing Tape (E396)
Polyvinyl Sheet (E284)
Gloves (E186)
Glass Cloth 181-150 (E132.1) or
Glass Cloth 181-77 (E132.2)
Polyethylene Cup (E157)
Wood Spatula (E424)
Wire Mesh (E453.1)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-187.1

Equipment Condition:
Off-Helicopter Task
Fuel Pod Prepared for Repair (Task 2-187.1)



General Safety Instructions:

WARNING

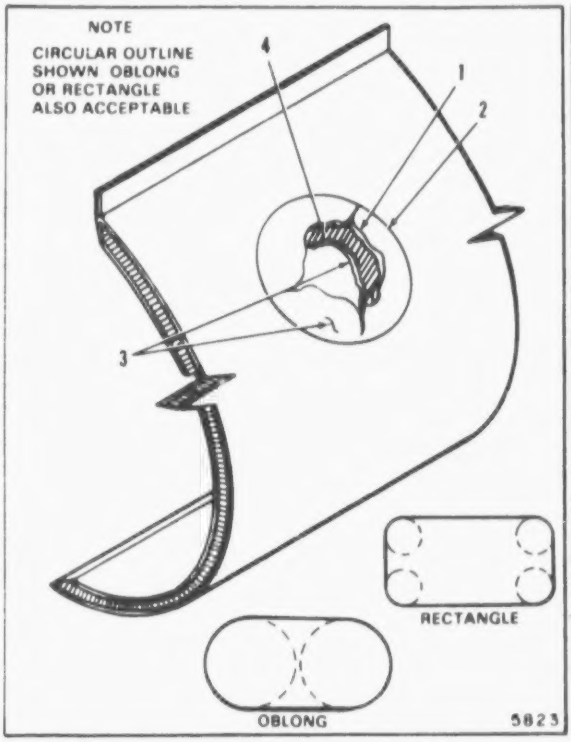
Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

GO TO NEXT PAGE

2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

REMOVE DAMAGE

1. Outline area of damage (1). Shape of outline (2) shall have no corners. A circle or oblong is preferred. A rectangle with rounded corners is acceptable. Use pencil compass and straightedge.
2. **Remove damaged skin (3)** and core (4) within outline (2) with hole saw or router. If hole saw is used, go to step 4. If router is used, go to step 3.

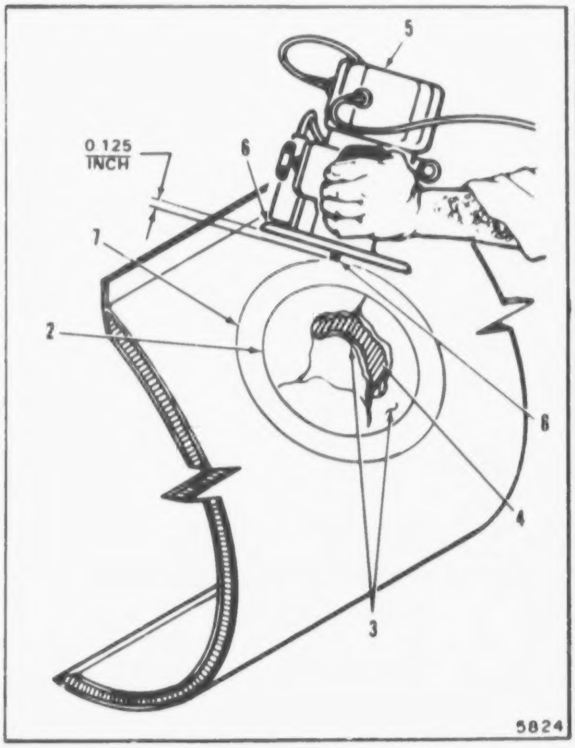

NOTE
CIRCULAR OUTLINE SHOWN OBLONG OR RECTANGLE ALSO ACCEPTABLE
4
1
2
3
RECTANGLE
OBLONG
5823

3. **Remove damaged skin (3) and core (4) with router (5) as follows:**
   a. Measure radius of router base (6). Draw guide line (7) around repair area outline (2) at a distance equal to radius.
   b. Install router bit (8). Set for depth of cut equal to 0.125 inch .

WARNING

Wear goggles, respirator, and protective clothing when using router. Fiberglass particles will irritate eyes, lungs, and skin.

   c. Start router (5). Keep router under complete control. Grasp handles with both hands.
   d. Rest edge of router base (6) on pod so that bit (8) is centered on damaged area. Slowly lower router so that bit penetrates pod skin (3).


5
0.125 INCH
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5824

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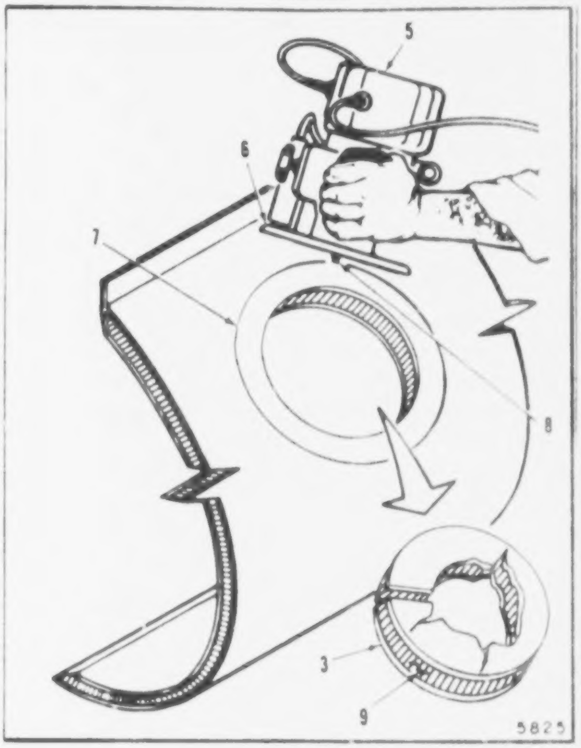
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

e. Slowly move router (5) outward until router base (6) just touches guideline (7). Follow guideline around in a counterclockwise direction. Keep edge of base just touching guideline.

f. When cut is complete, move router (5) into center of repair area. Turn off router and remove it.

g. Set router bit (8) deep enough to cut through opposite skin (3). Repeat steps 2.d. thru 2.f. to remove plug (9) of core and skin.

h. Go to step 5



4. **Remove damaged skin (3) and core (4) with hole saw as follows:**

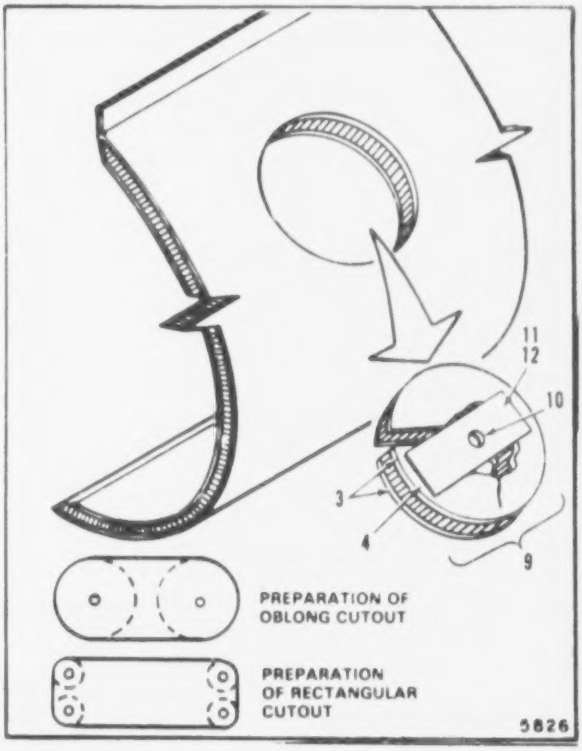
a. Drill pilot hole (10) at center of damaged area (1). Make hole the same size as center drill of hole saw. If damage does not allow drilling, cover area with several layers of template paper (E263) (11) and masking tape (E388) (12). Secure paper with tape.

NOTE

Hole saw shall be same diameter as curve of damage area outline.

b. Insert center drill of hole saw in pilot hole (10). Hold saw lightly against skin (3) and slowly turn it clockwise. Use wrench.

c. Turn saw until it goes through opposite skin (3). Remove plug (9) of skin and core.


11
12
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4
9
PREPARATION OF OBLONG CUTOUT
PREPARATION OF RECTANGULAR CUTOUT
5826

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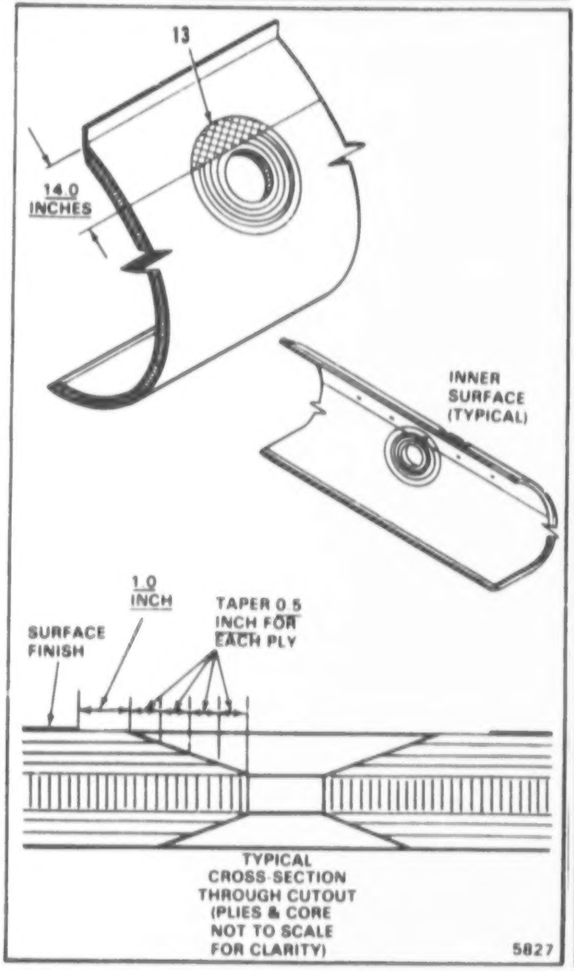
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

PREPARE SURFACE

5. **Determine number of plies cut through on inner and outer surfaces of pod.** (Refer to Task 2-187.1.) Mask off area around cutout equal to at least 0.5 inch in all directions for each ply removed plus an additional 1.0 inch . Use template paper (E263) and masking tape (E388).
6. **Remove finish from masked area.** Use sanding block and abrasive paper (E6). Use clean cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
7. Complete finish removal with abrasive paper (E8). In areas of wire mesh (13), do not sand through mesh. If mesh was removed, expose mesh for 1.0 inch around removed area.
8. **Taper edge of cutout** 0.5 inch for each ply removed. Leave at least 1.0 inch between outboard edge of taper and border of finish removal area.
9. Remove sanding dust from repair area. Use a vacuum cleaner. Clean masked area with clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloths. Do not touch cleaned area with bare hands.


13
14.0 INCHES
INNER SURFACE (TYPICAL)
1.0 INCH
TAPER 0.5 INCH FOR EACH PLY
SURFACE FINISH
TYPICAL CROSS-SECTION THROUGH CUTOUT (PLIES & CORE NOT TO SCALE FOR CLARITY)
5827

PREPARE REPAIR MATERIALS

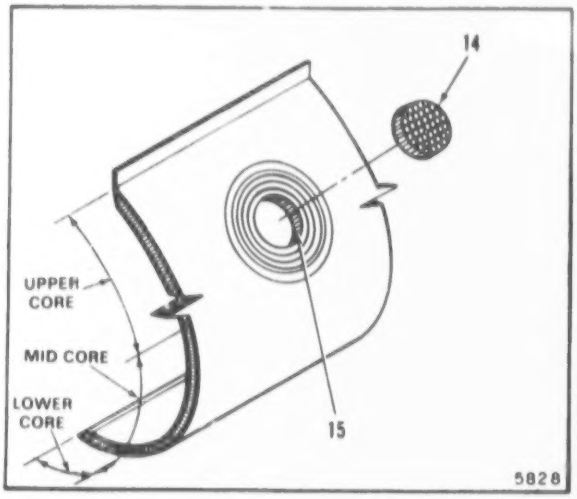
CAUTION

Wear gloves (E186) for remaining steps. Bare hands will contaminate materials, causing poor bond.

NOTE

Core material must be clean and dry for adhesive to hold.

10. **Make core plug (14) in shape of cutout, but 0.125 inch larger all around.** Orient ribbon in same direction as existing core (15). Use core material (E150.1) in upper and lower core areas. Use core material (E150.2) in middle core area. Refer to Task 2-187.1.


14
UPPER CORE
MID CORE
LOWER CORE
15
5828

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2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

11. **Determine number and size of pieces of glass cloth (E132) (16) needed for repair.** For each side of pod, number of plies is equal to one more than number of plies removed. (Refer to Task 2-187.1.) Size of smallest piece on each side shall be large enough to overlap core plug (14) 0.5 inch. Each additional piece shall be large enough to overlap previous piece by 0.5 inch in all directions.
12. Check that finish on each side of pod is removed for at least 0.5 inch more in all directions than size determined for largest piece of cloth (16).
13. **Cut one piece of glass cloth (E150.1) or (E150.2) enough for cutting the number of pieces (16) needed.**
14. **Cut two pieces of cellophane (E98)** about 1 inch larger all around than piece of glass cloth (E132). Fasten one piece to a smooth surface. Use masking tape (E388).

INSTALL CORE PATCH

15. **Mix tube of adhesive (E40)** for core plug (14).

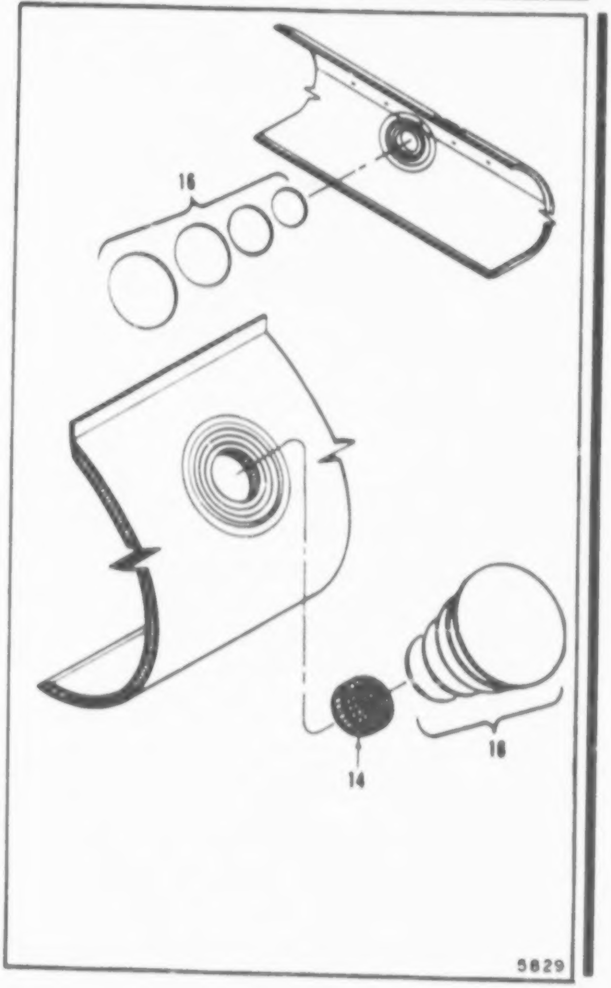
CAUTION

Weigh and mix resin and hardener accurately to produce acceptable bond.

16. **If adhesive (E40) is not available, prepare adhesive (E41) as follows:**
    a. Weigh 100 parts of resin and 23 parts of hardener.

NOTE

Working life of mixed adhesive is 30 minutes.



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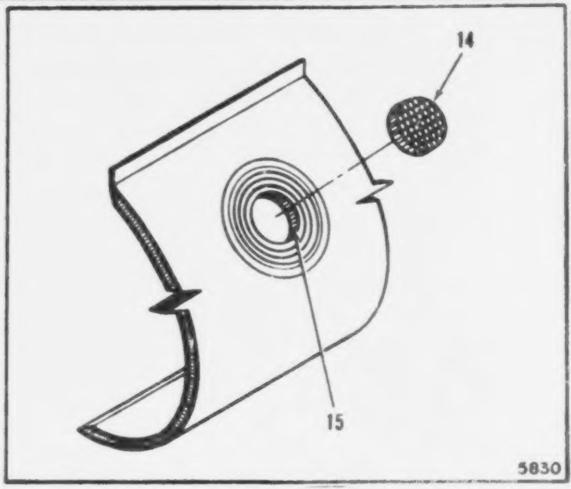
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424) Wear gloves (E186).

17. **Apply mixed adhesive (E40 or E41) around edge of core plug (14) and undamaged core (15).**
18. **Install core plug (14)** in cutout. Orient ribbon on plug in same direction as undamaged core (15). Set plug flush with surface of undamaged core.



INSTALL GLASS CLOTH

19. **Prepare adhesive as follows:**

NOTE

Weigh and mix resin and hardener accurately to produce acceptable bond.

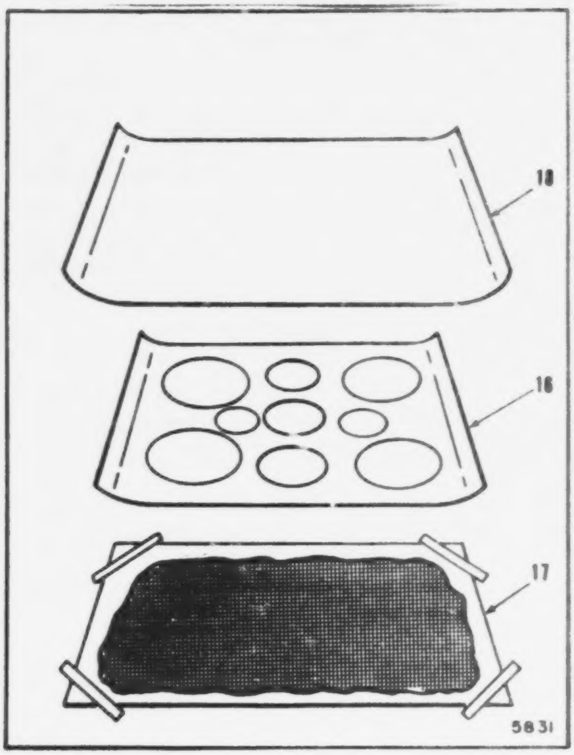
a. Weigh 101 parts of resin (E47) and 14 parts of hardener (E192).

NOTE

Working life of mixed adhesive is 30 minutes .

b. Mix weighed parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424). Wear gloves (E186).

20. **Spread adhesive mixture over taped piece of cellophane (E98) (17). Place piece of glass cloth (E132.1) or (E132.2) (16) cut in step 13. in adhesive.**
21. **Cover glass cloth (16) with second piece of cellophane (E98) (18).**



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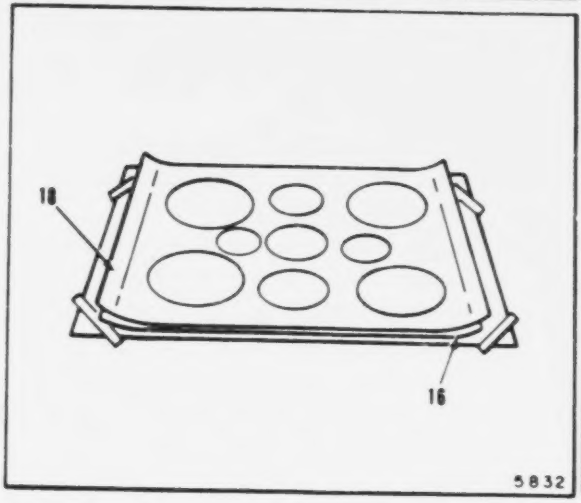
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

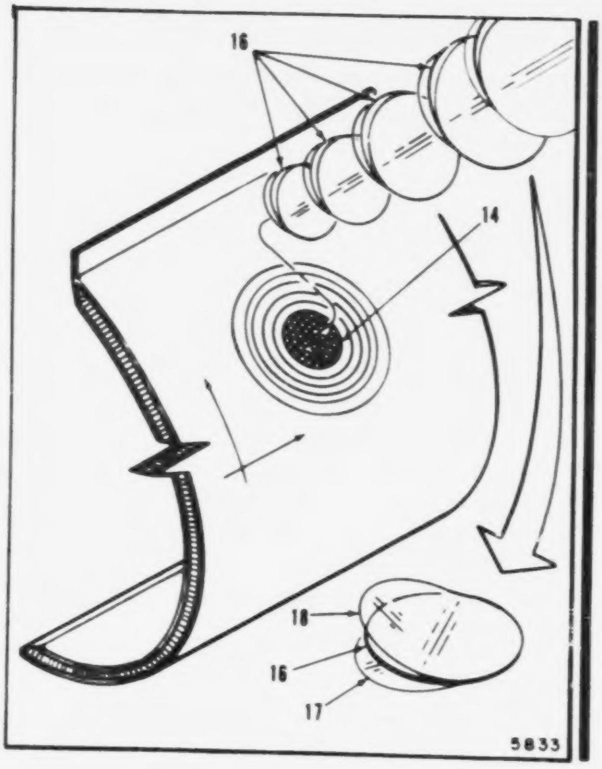
22. **Press on top layer of cellophane (18).** Use a roller. Continue **until glass cloth (16) is saturated** with adhesive mixture and all excess resin is squeezed out.



NOTE

Cellophane eliminates fraying of glass cloth edges while cutting.

23. **Cut glass cloth into pieces (16)** as determined in step 10. Cut pieces so that the weave of the cloth will run horizontally and vertically on the pod. Do not remove cellophane (17 or 18). Cut through it.
24. **Coat area around cutout on one side of tank with adhesive mixture** prepared in step 19.
25. **Remove cellophane (17 or 18) from one side of smallest cloth piece (16) cut for that side. Position piece so that weave of cloth runs horizontally and vertically on pod. Place exposed face of patch against core plug (14).** Keep equal overlap on all sides.
26. Apply light pressure over surface of patch (16) to remove wrinkles and entrapped air. Be careful not to move core plug (14).
27. **Remove cellophane yrom installed piece (16) and one surface of next larger piece. Apply larger piece over installed piece** with equal overlap on all sides.
28. **Repeat steps 26. and 27.** for all remaining pieces (16) for that side of pod.



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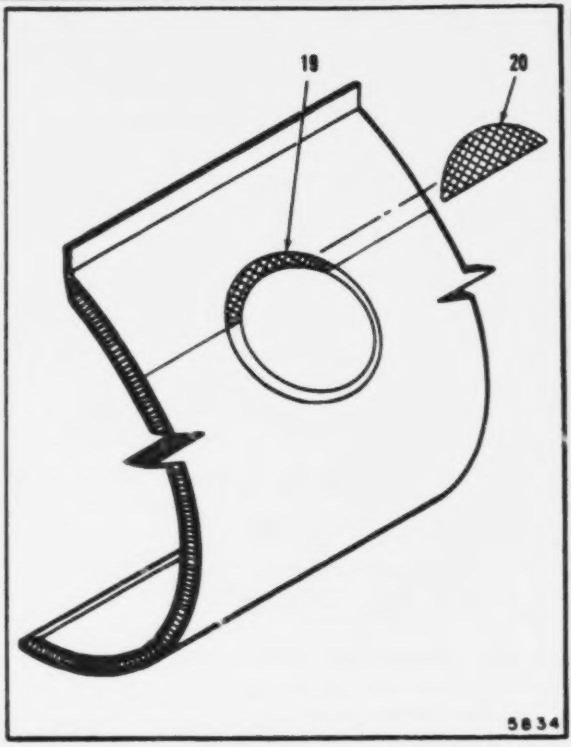
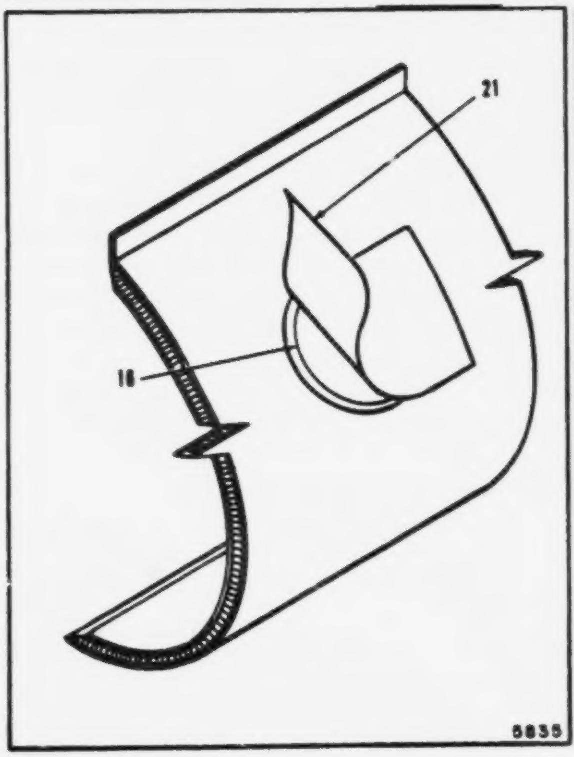
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

29. **If more than 1 square inch of wire mesh (19) was removed, replace it** as follows:
    a. Cut a piece of wire mesh (E453.1) (20) large enough to overlap existing mesh (19) 1 inch in all directions.
    b. Brush a coat of adhesive mixture prepared in step 19 over repair area and existing mesh (19).
    c. Seat replacement mesh (20) over repair area and existing mesh (19). Make sure mesh is in firm contact over entire 1-inch overlap .
    d. Brush smooth coat of adhesive mixture (E40 or E41) over replacement mesh (20). Fair adhesive to tank skin.
30. **Cover opposite side of repair area with glass cloth patches.** (Refer to steps 24. thru 29.



BOND REPAIR

31. **Cover repair area on one side of pod with peel ply (E270) (21)** to overlap area by at least 1 inch .
32. **Fair edges of glass cloth (16) to contour of pod.** Wipe from center of patch outward with rubber spatula. Make sure all loose threads of glass cloth are imbedded in adhesive.
33. **Repair steps 30. thru 32. for opposite side of repair.**



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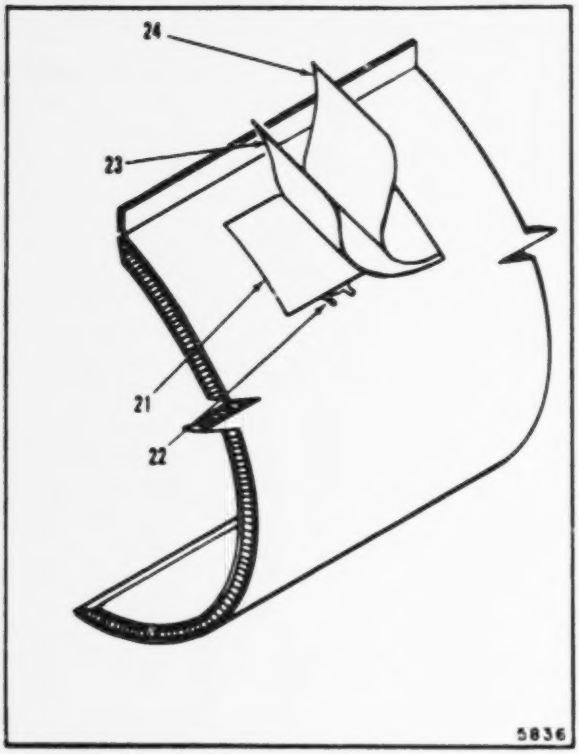
2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

34. Wipe off adhesive squeezeout (22) from around peel ply (21).

35. **Cover peel ply (21) on one side of pod with a sheet of teflon-impregnated fabric (E170) (23).** Make sheet large enough to overlap peel ply by 1 inch .

36. **Cover teflon-impregnated fabric (22) with fiberglass cloth (E132) (24).**

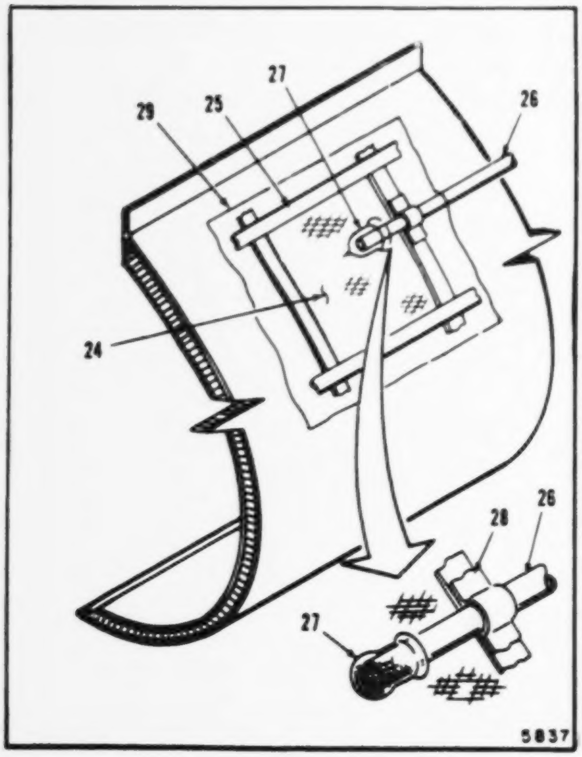


37. **Surround repair area with sealing tape (E396) (25).** Leave at least 1 inch between cloth (24) and tape on all sides.

38. Wrap end of tube (26) with two layers of fiberglass cloth (E132) (27). Secure cloth to tube with masking tape (E388).

39. **Lay covered end of tube (26) on glass cloth (24).** Keep end of tube outside of repair area. Wrap tube with sealing tape (E396) (28) where it crosses surrounding tape. Form an airtight seal.

40. Press polyvinyl sheet (E284) (29) smoothly onto tape (25) to make airtight seal around repair area.



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2-187.6 REPAIR COMPOSITE POD — DOUBLE SKIN (AVIM) (Continued) 2-187.6

41. **Repeat steps 35. thru 40. for repair area on opposite side of pod.**
42. **Connect ends of tubes (26) to a vacuum pump.** Use rubber hoses (30) and tee connection (31).
43. Start vacuum pump. Set pump for vacuum of 3 in. Hg . Check for leaks. Reposition polyvinyl sheet (29) or add tape (25) as needed to stop leaks.
44. Increase vacuum to 20 inches Hg . Maintain vacuum throughout adhesive cure.

CAUTION

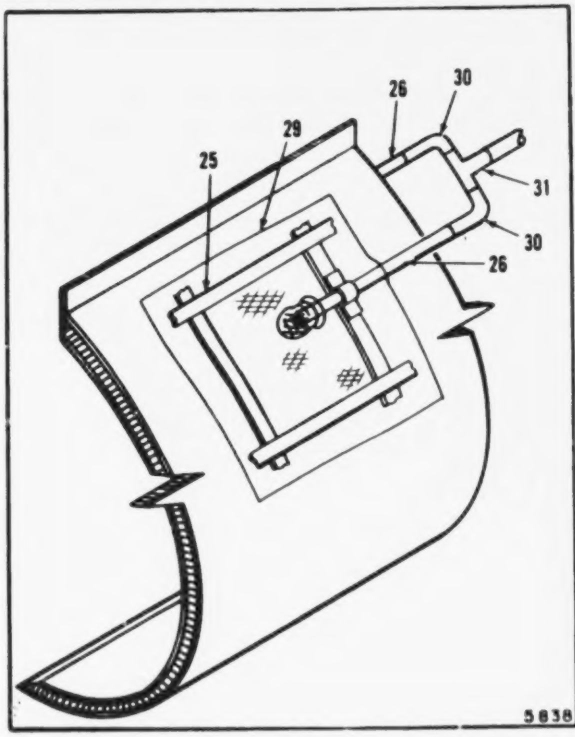
Do not exceed 160°F (71°C) at pod surface. Damage to pod can occur.

45. **Cure adhesive** at 150°F to 160°F (66°C to 71°C) for 2.5 hours . Use explosion-proof heat lamp set at 11 to 12 inches from repair area. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours . Vacuum may be removed after 8 hours .

46. Turn off vacuum pump.

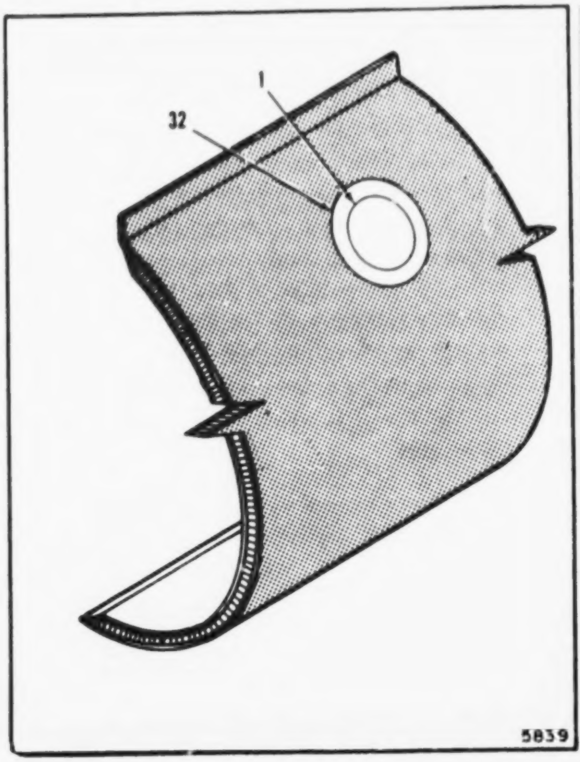


47. Remove vacuum bagging materials from repair area.
48. Check that patch (1), on each side of pod, is free of pits, blisters, voids, and excess resin deposits. If squeezeout fairing (32) is not satisfactory, fair patch with adhesive. Follow step 19. to mix adhesive.

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish fuel pod (Task 2-187.7).



END OF TASK

2-187.7 REFINISH COMPOSITE PODS 2-187.7

INITIAL SETUP

Applicable Configurations:

Helicopters With Composite Fuel Pods

Tools:

Sanding Block
Spray Gun

Materials:

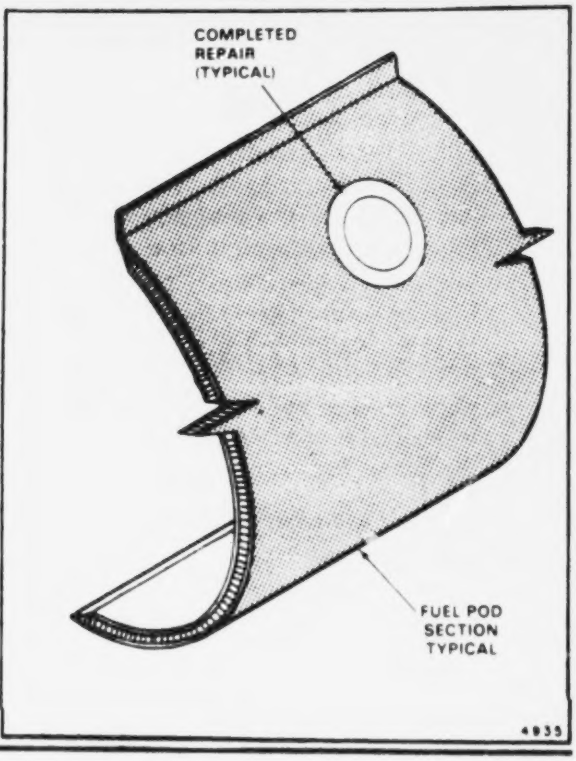
Abrasive Paper (E9)
Acetone (E20)
Cloths (E120)
Gloves (E186)
Epoxy Primer (E292)
Antistatic Coating (E135.1)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off

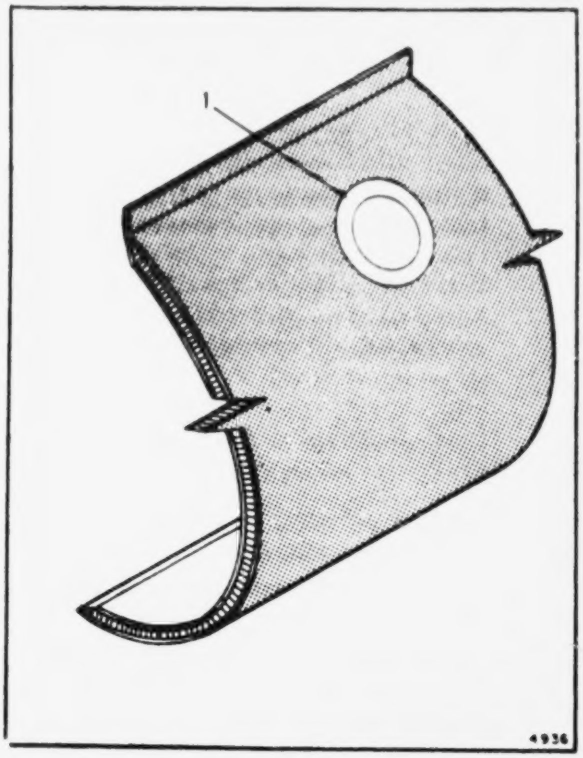


1. **Lightly sand repair area (1)** to fair edges and smooth finish. Use abrasive paper (E9).

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

2. **Clean area of pod to be refinished.** Use clean cloths (E120) damp with acetone (E20). Wear gloves (E186). Continue wiping until cloths remain clean.



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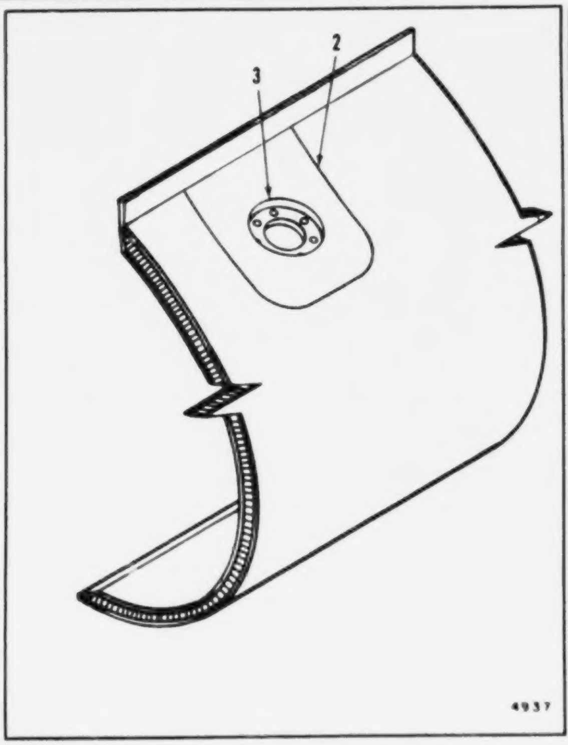


3. **Seal edges and fasteners as needed** (Task 2-324).

WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

4. **Apply 2 coats of epoxy primer (E292)** to repair area. Let air dry 1 hour between coats.

NOTE

Epoxy primer is only finish required for pod interior.

5. **If repair area extends into bib (2) around fill port (3), apply antistatic coating (E135.1) to exposed surface of bib** as follows:

WARNING

Antistatic coating (E135.1) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

   a. Mix antistatic coating (E135.1). Follow instructions on container.
   b. Let mixture stand at room temperature for 30 minutes .
   c. Clean surface. Use a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean, dry cloth.

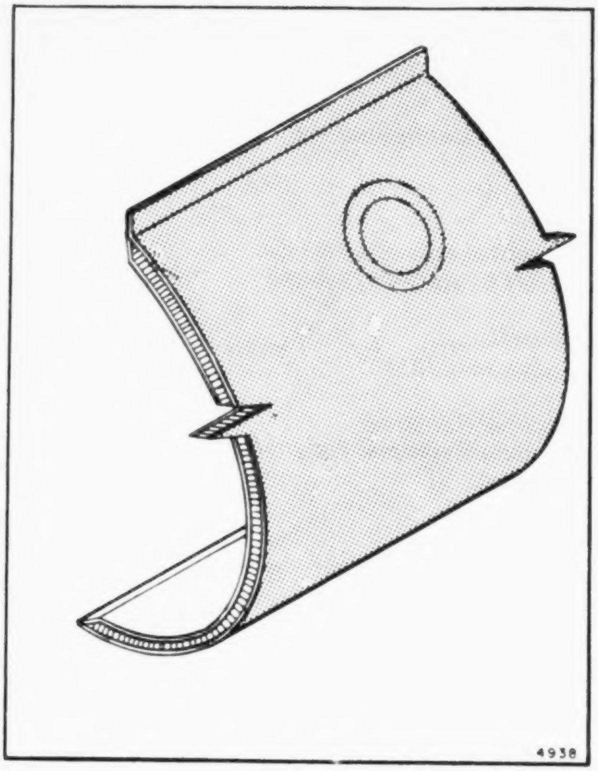
GO TO NEXT PAGE

2-187.7 REFINISH COMPOSITE PODS (Continued) 2-187.7

NOTE

Apply coating within 4.5 hours of mixing.

d. **Apply mixture in several thin spray coats** to a final thickness of 0.0006 to 0.001 inch. Allow 30 minutes between coats. Allow final coat to dry for at least 3 hours at 70° to 80°F (21° to 27°C).



INSPECT

FOLLOW-ON MAINTENANCE:

Apply topcoat to repair area (Task 2-353).

END OF TASK

2-188 INSTALL FUEL POD PANELS 2-188

INITIAL SETUP

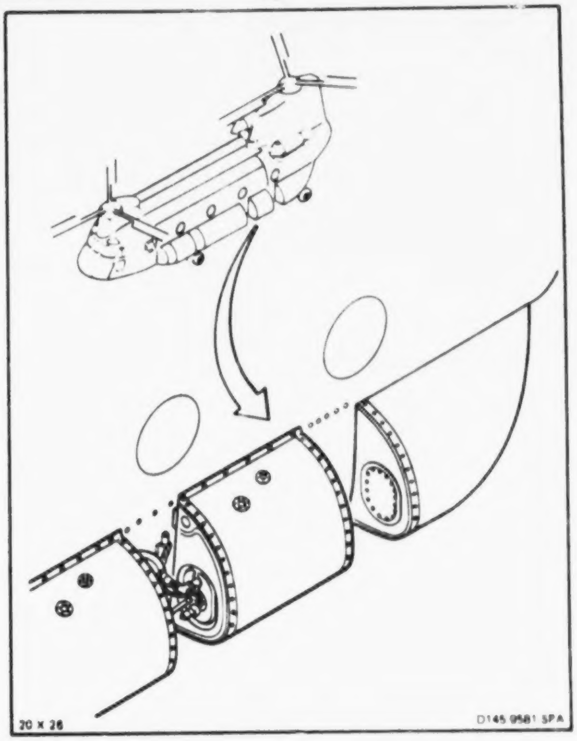
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lockwire (E231)

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

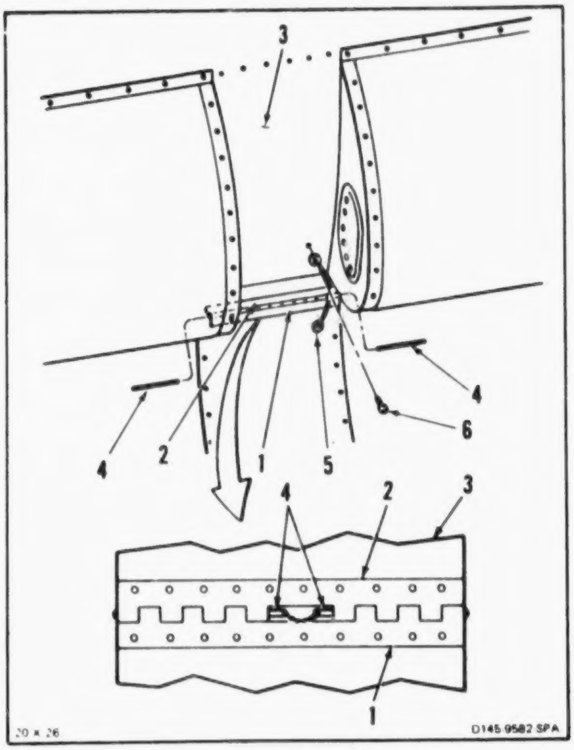
References:
TM 55-1520-240-23P



NOTE

Procedure is same to install left or right fuel pod panels. Left fuel pod panels shown here.

1. **Have helper align fuel pod panel hinge (1) with hinge (2) on fuselage (3). Install two hinge pins (4).**
2. Lockwire hinge pins (4). Use lockwire (E231).
3. **Install bonding jumper (5) and screw (6).**



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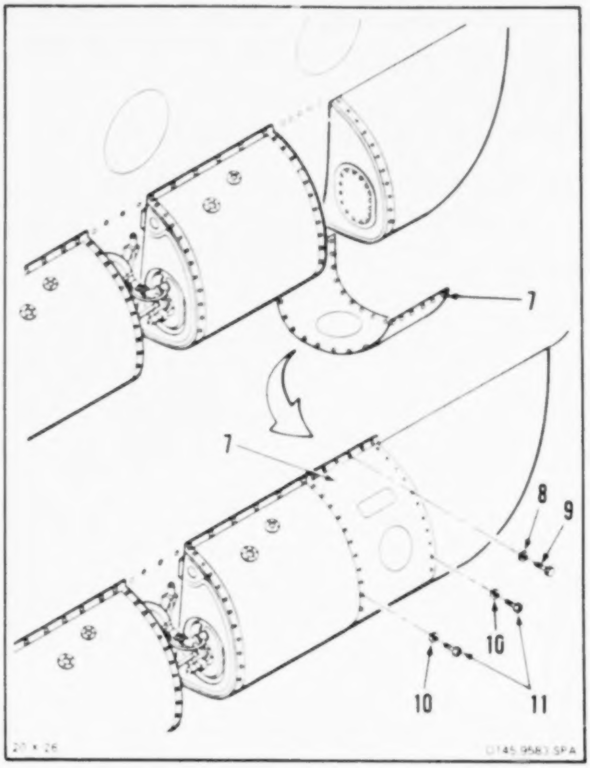
2-188 INSTALL FUEL POD PANELS (Continued) 2-188

4. **Have helper raise fuel pod panel (7)** and align holes across top of panel and fuselage (3).
5. **Install** six washers (8) and **bolts (9).**
6. **Install 35** washers (10) and **screws (11)** in panel (7).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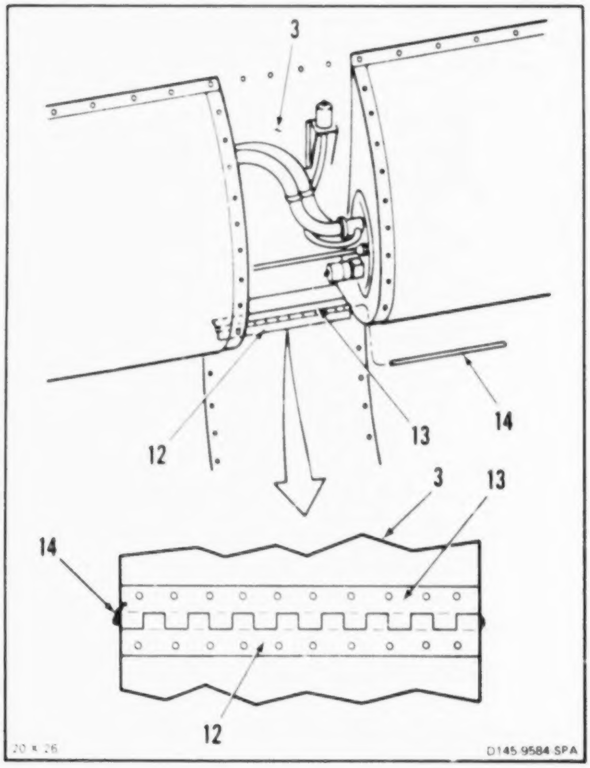
7. **Have helper align fuel pod panel hinge (12) with hinge (13) on fuselage (3). Install hinge pin (14).**
8. Lockwire hinge pin (14). Use lockwire (E231).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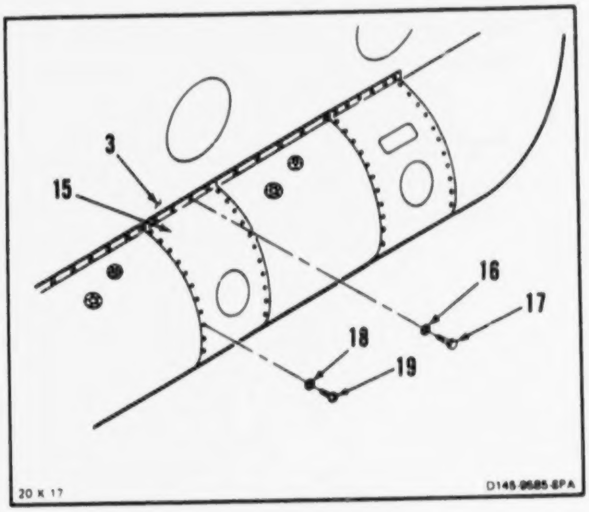
2-188 INSTALL FUEL POD PANELS (Continued) 2-188

9. **Have helper raise fuel pod panel (15) and align holes across top of panel and fuselage (3).**
10. **Install four** washers (16) and **bolts (17).**
11. **Install 35** washers (18) and **screws (19)** in panel (15).

INSPECT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FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-189 REMOVE INBOARD BACKING BOARDS 2-189

INITIAL SETUP

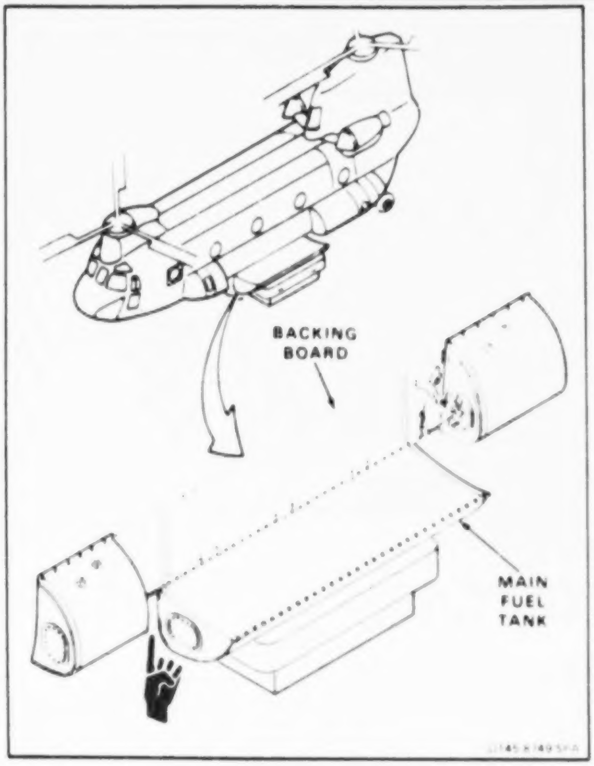
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

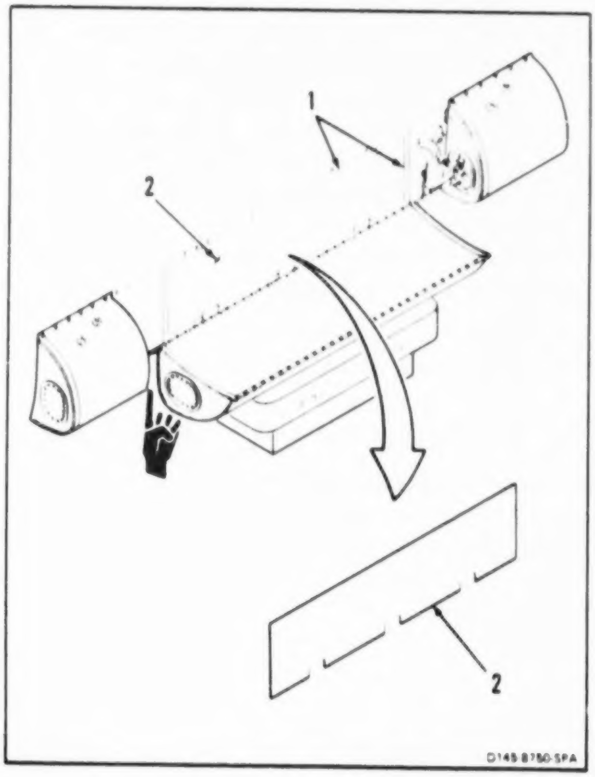
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Aircraft Defueled (Task 10-34)
Forward, Aft, or Main Fuel Tank Lowered (Tasks 10-23, 10-28, 10-6)



NOTE

Procedure is same to remove forward auxiliary, aft auxiliary, or main fuel tank inboard backing boards. Main fuel tank backing board shown here

1. **Remove anti-chafing tape (1)** from edges of backing board (2).
2. **Remove backing board (2).**



FOLLOW ON MAINTENANCE:

None

END OF TASK

2-190 INSTALL INBOARD BACKING BOARDS

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Pressure Sensitive Spec Tape (E394)
Dry Cleaning Solvent (E161)
Cloths (E120)
Gloves (E186)

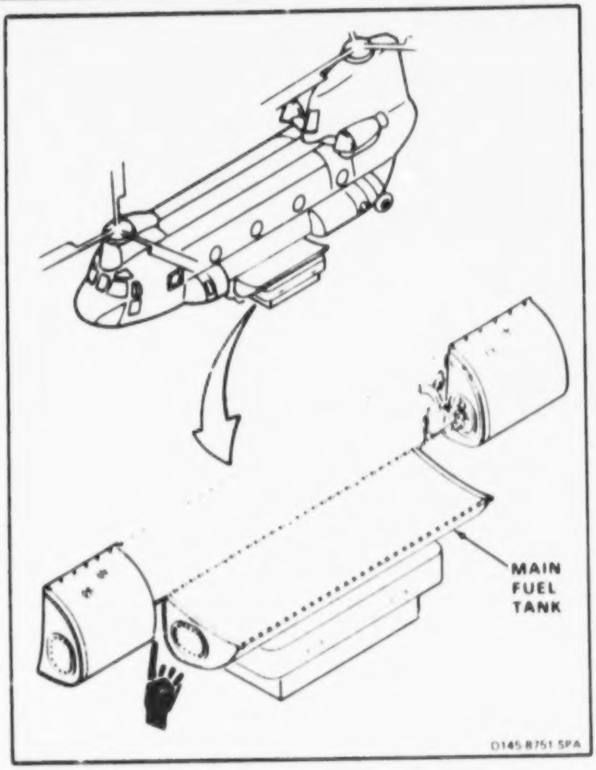
Personnel Required:
Medium Helicopter Repairer (3)
Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

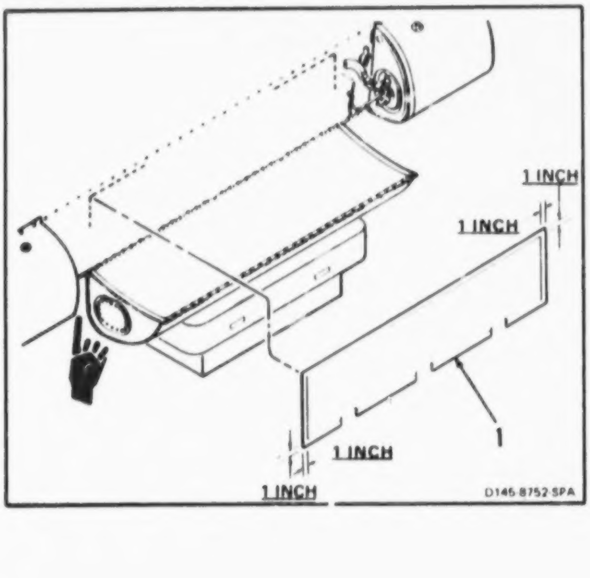
Dry cleaning solvent (E161) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



NOTE

Procedure is same to install forward auxiliary, aft auxiliary, or main fuel tank inboard backing boards. Main fuel tank backing board shown here.

1. **Clean outboard surface of backing board (1) 1 inch in from each edge.** Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).



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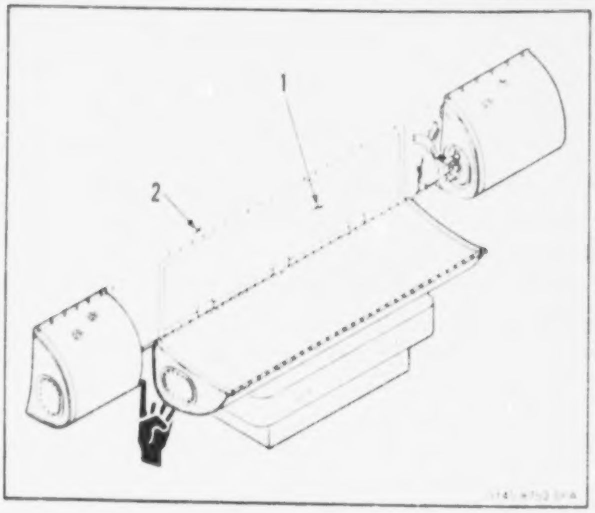
2-190 INSTALL INBOARD BACKING BOARDS (Continued) 2-190

2 **Have helpers position backing board (1) against fuselage (2)**

3 **Mark fuselage (2) 1 inch from each edge of backing board (1).** Remove backing board



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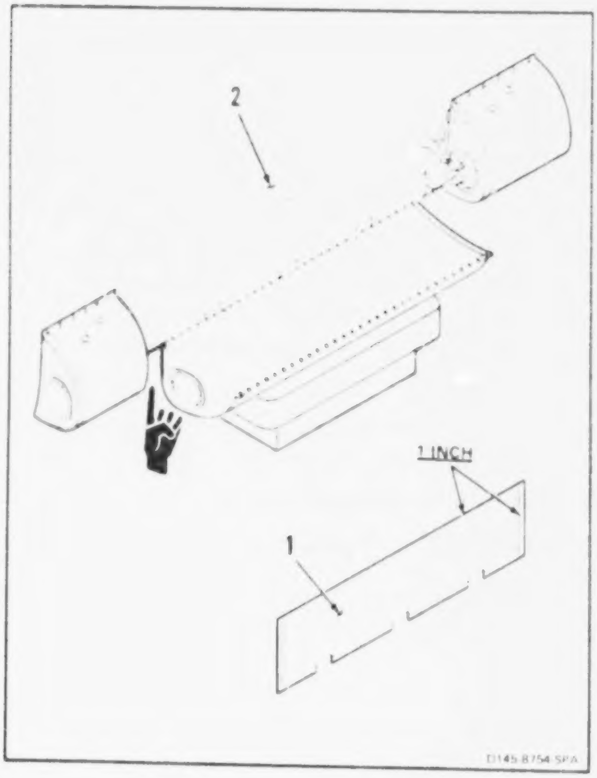
4 **Clean surface of fuselage (2), 1 inch from each edge of backing board (1).** Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186)

5 **Apply pressure sensitive spec tape (E394) to backing board (1)** and fuselage (2)

INSPECT



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FOLLOW-ON MAINTENANCE

Install forward auxiliary fuel tank (Task 10-26)

Install aft auxiliary fuel tank (Task 10-31)

Install main auxiliary fuel tank (Task 10-21)

END OF TASK

2-190.1 REMOVE OUTBOARD AND END BACKING BOARDS 2-190.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

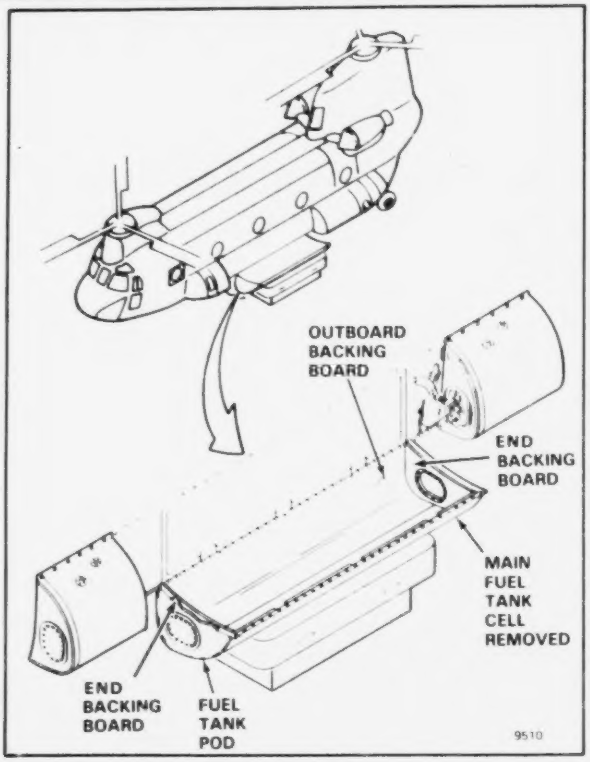
None

Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Main Fuel Tank Removed (Task 10-7)
Forward Auxiliary Fuel Tank Removed (Task 10-29)
Aft Auxiliary Fuel Tank Removed (Task 10-29)


OUTBOARD BACKING BOARD
END BACKING BOARD
MAIN FUEL TANK CELL REMOVED
END BACKING BOARD
FUEL TANK POD
9510

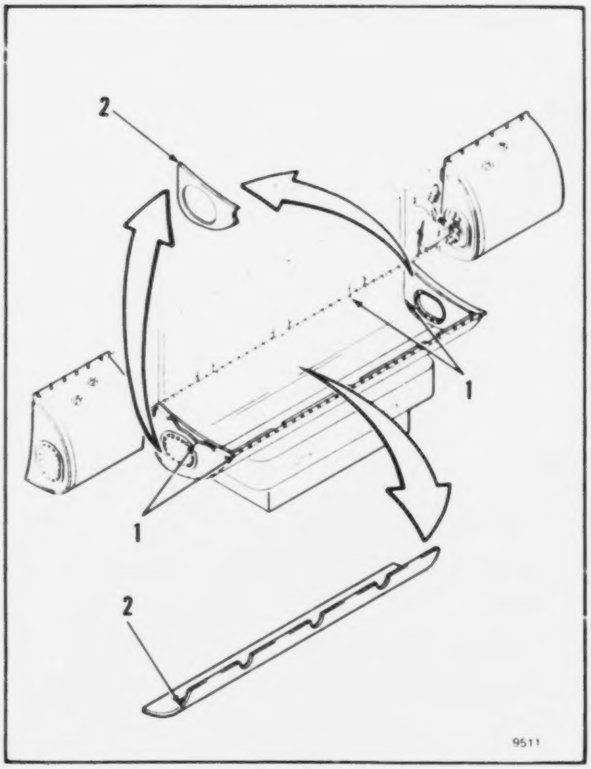
NOTE

Procedure is same to remove forward auxiliary, aft auxiliary or main fuel tank outboard and end backing boards. Main fuel tank backing boards shown here.

1. **Remove anti-chafing tape (1)** from edges of backing board (2).
2. **Remove backing board (2).**

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-190.2 INSTALL OUTBOARD AND END BACKING BOARDS 2-190.2

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Pressure Sensitive Spec Tape (E394)
Dry Cleaning Solvent (E161)
Cloths (E120)
Gloves (E186)

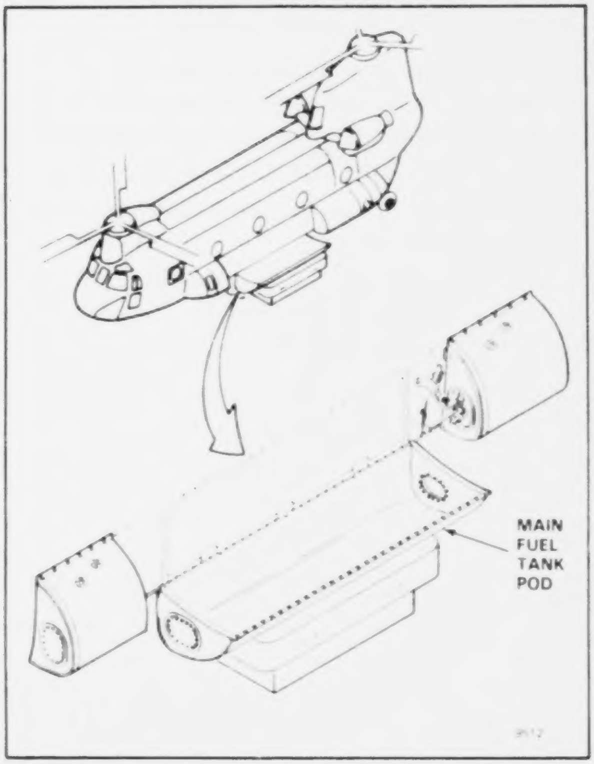
Personnel Required:
Medium Helicopter Repairer (3)
Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

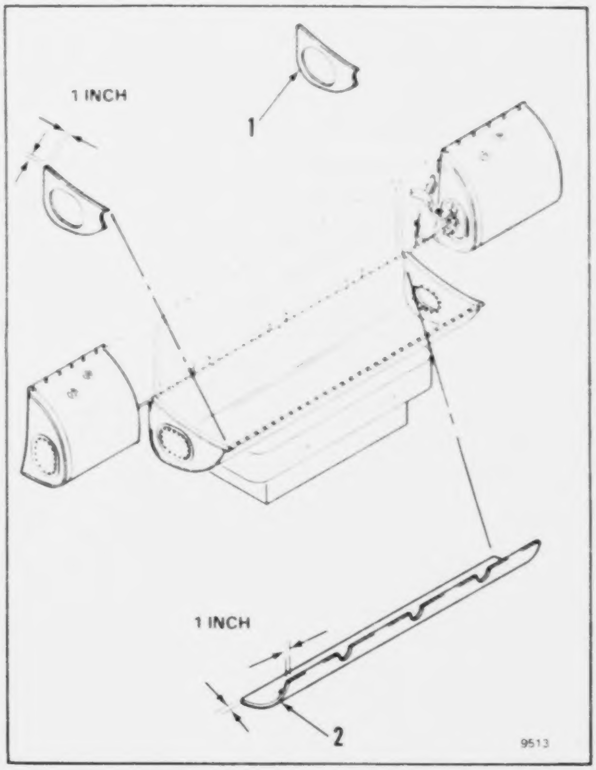
Dry cleaning solvent (E161) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



NOTE

Procedure is same to install forward auxiliary, aft auxiliary, or main fuel tank outboard and end backing boards. Main fuel tank backing boards shown here.

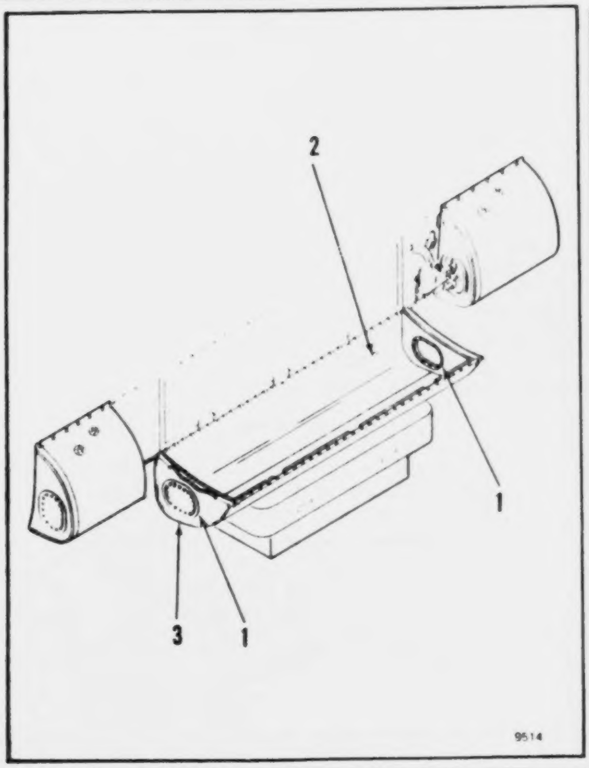
1. **Clean outboard surface of backing boards (1) and (2) 1 inch from each edge.** Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).



GO TO NEXT PAGE

2-190.2 INSTALL OUTBOARD AND END BACKING BOARDS (Continued) 2-190.2

2. **Have helper position end backing boards on end of fuel cell pod (3).**
3. **Mark pod (3) 1 inch from each edge of backing boards (1)** remove backing board.
4. **Have helper position outboard backing board (2) in pod (3).**
5. **Mark pod (3) 1 inch from each edge of outboard backing board (2).** Remove outboard backing board.



6. Clean surface of pod (3) 1 inch from each edge of end and outboard backing boards (1 and 2). Use cloths (E120) and dry cleaning solvent (E161). Wear gloves (E186).
7. Position backing boards for installation. Apply pressure sensitive tape (E394) to backing boards (1 and 2) and pod (3).

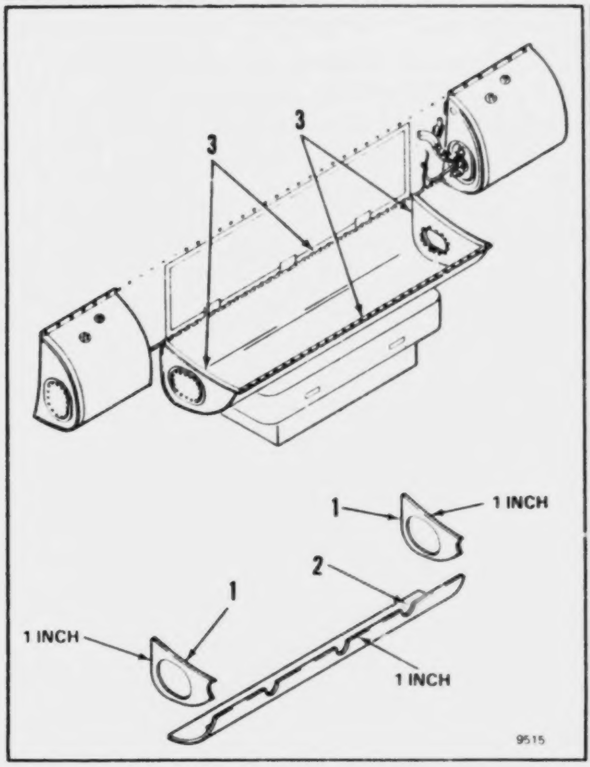
INSPECT

FOLLOW-ON MAINTENANCE:

Install forward auxiliary fuel tank (Task 10-26).

Install aft auxiliary fuel tank (Task 10-31).

Install main fuel tank (Task 10-21).



GO TO NEXT PAGE

2-191 REMOVE FUEL TANK ISOLATION PANEL 2-191

INITIAL SETUP

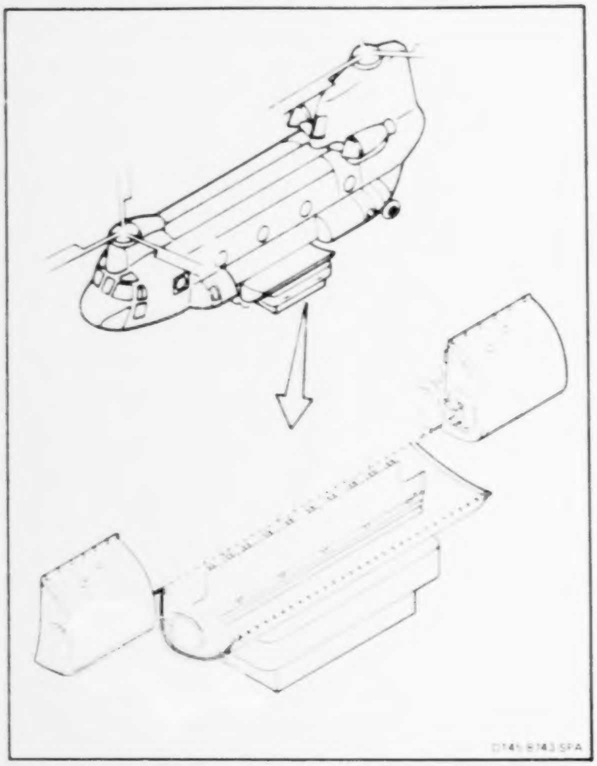
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-363-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

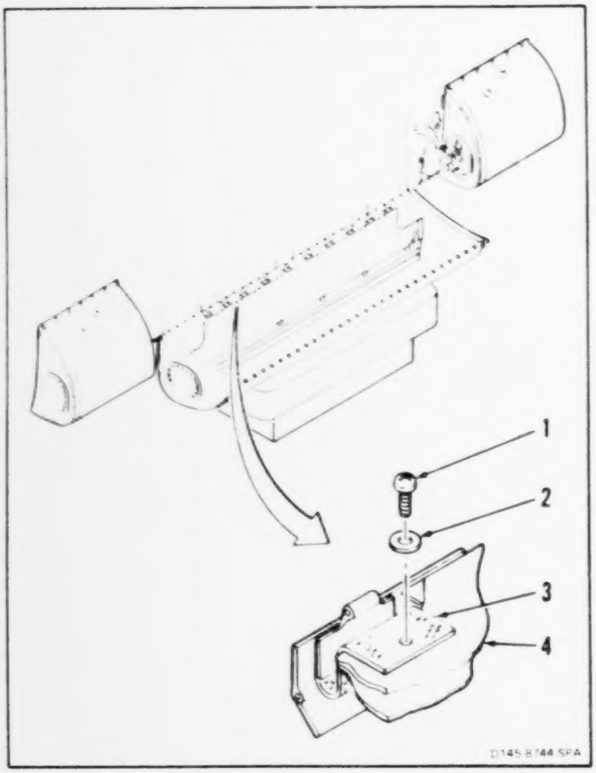
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Aircraft Defueled (Task 10-34)
Forward, Aft or Main Fuel Tank Lowered (Tasks 10-23, 10-28, 10-6)
Forward, Aft or Main Fuel Cell Removed (Tasks 10-24, 10-29, 10-7)
Isolation Panel Backing Board Removed (Task 2-189)



NOTE

Procedure to remove forward, aft, or main fuel tank isolation panels, is same. Main fuel tank isolation panel shown here.

1. **Remove eight screws (1),** washers (2), **and straps (3)** from isolation panel (4).

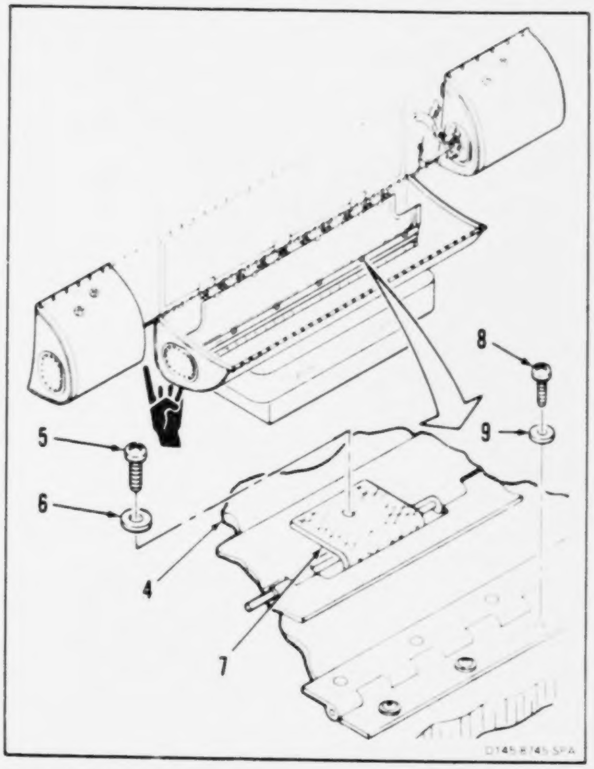


GO TO NEXT PAGE

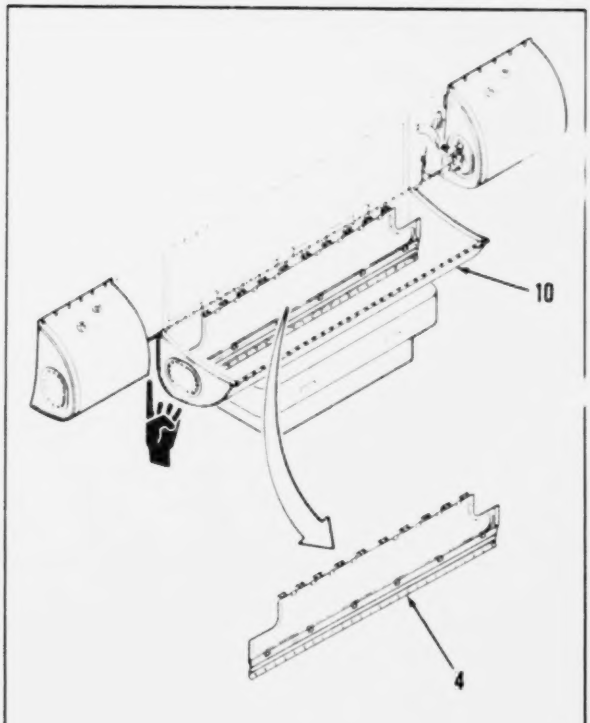
2-191 REMOVE FUEL TANK ISOLATION PANEL (Continued) 2-191

2 **Remove six screws (5),** washers (6) **and straps (7)** from panel (4).

3 **Remove 28 screws (8),** and washers (9) from panel (4).


8
5
9
6
4
7
D145-8745-SPA

4 **Remove isolation panel (4)** from fuel tank (10).


10
4
D145-8746-SPA

FOLLOW ON MAINTENANCE:

None

END OF TASK

2-192 INSTALL FUEL TANK ISOLATION PANEL 2-192

INITIAL SETUP

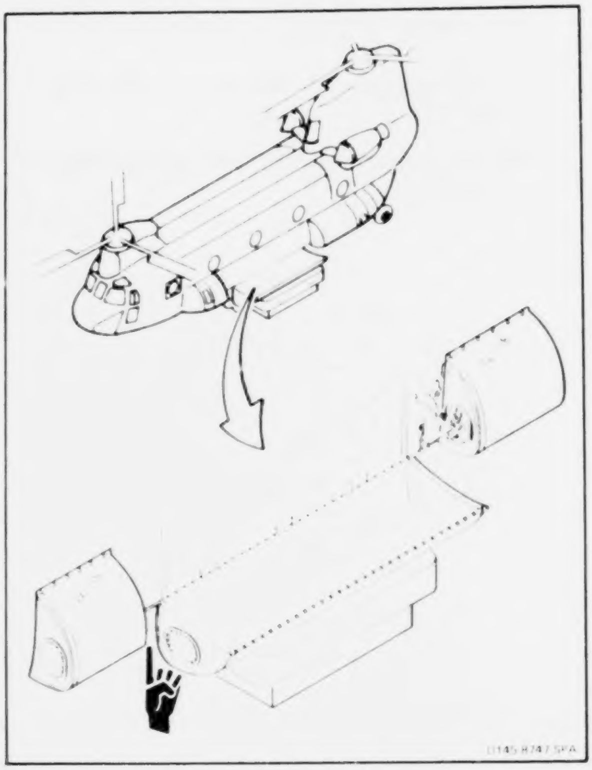
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

References:
TM 55-1520-240-23P



GO TO NEXT PAGE

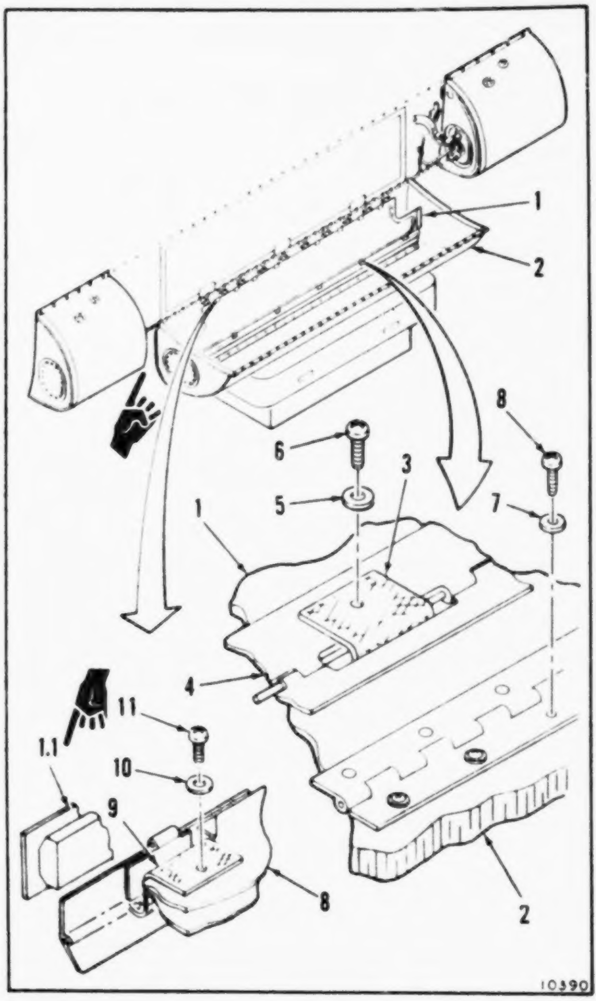
2-192 INSTALL FUEL TANK ISOLATION PANEL (Continued) 2-192

NOTE

Procedure to install forward, aft, or main fuel tank isolation panels is same. Main fuel tank isolation panel shown here.

1. **Position isolation panel (1) in fuel tank (2).** Make sure shim (1.1) is in place.
2. **Rout six straps (3) through gaps in hinge (4). Install six straps (3),** washers (5), **and screws (6)** in panel (1).
3. Align 28 holes in panel (1) and fuel tank (2). **Install washers (7)** and screws (8).
4. **Install eight straps (9),** washers (10), **and screws (11)** in panel (1).

INSPECT



FOLLOW-ON MAINTENANCE:

Install isolation panel backing board (Task 2-190).

Install forward, aft or main fuel call (Task 10-25, 10-30, or 10-20).

Install forward, aft or main fuel tank (Task 10-26, 10-31, or 10-21).

END OF TASK

2-193 REMOVE RESCUE HATCH LOWER DOOR 2-193

INITIAL SETUP

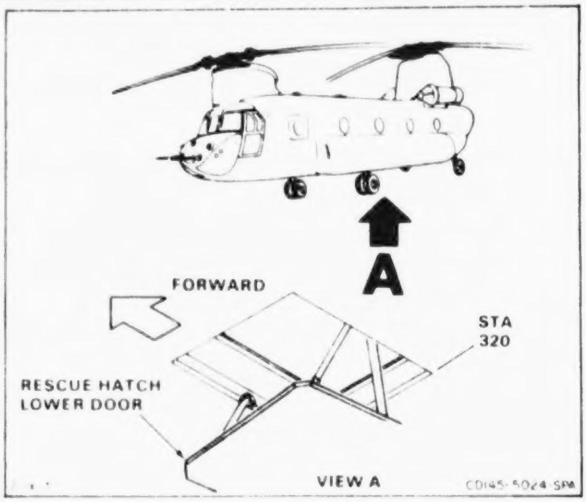
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Open Rescue Hatch Upper Door


A
FORWARD
STA 320
RESCUE HATCH LOWER DOOR
VIEW A
CD145-5024-SPM

1 Make sure cargo hook (1) is stowed and supported by strap (2).

NOTE

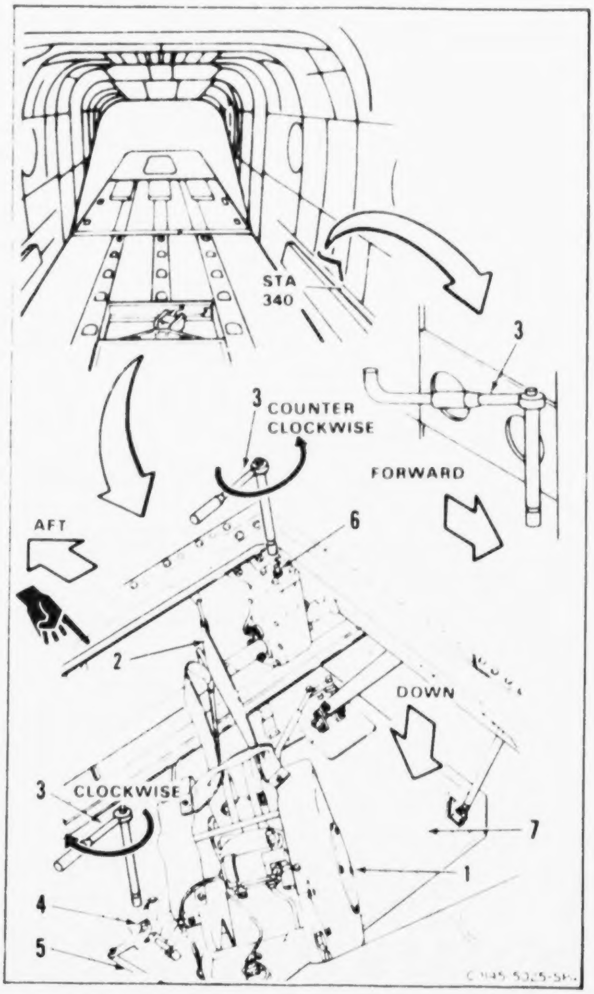
Crank handle is stowed at station 340 left side.

2 **Unstow crank handle (3). Attach handle to actuator shaft (4). Turn handle clockwise until latches (5) release.** Remove handle.

CAUTION

Make sure latches are released before turning actuator gearbox shaft. Otherwise, damage to door can result.

3 **Attach handle (3) to gearbox shaft (6). Turn handle counterclockwise until lower door (7) is at lowest position.** Stow handle.


STA 340
3
3 COUNTER CLOCKWISE
FORWARD
AFT
6
2
DOWN
3 CLOCKWISE
7
1
4
5
CD145-5325-SPM

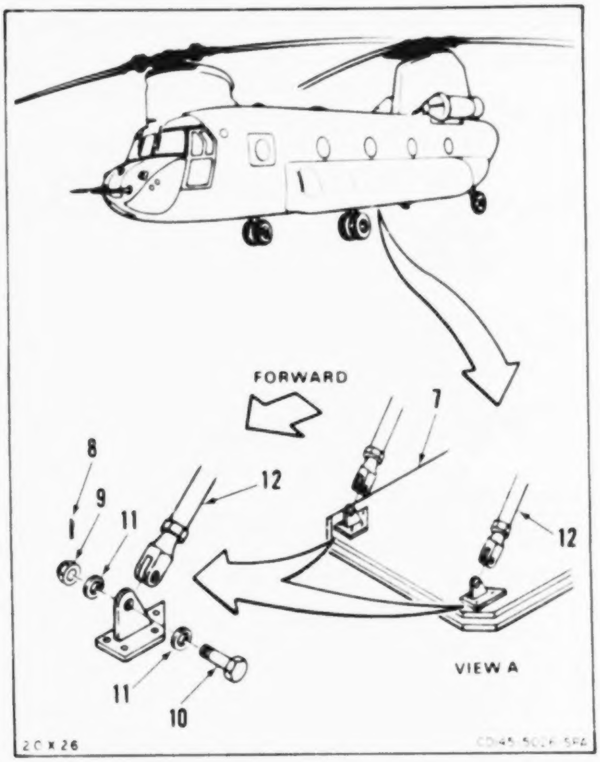
GO TO NEXT PAGE

2-193 REMOVE RESCUE HATCH LOWER DOOR (Continued) 2-193

4. From outside helicopter, have helper support door (7).
5. **Remove** four cotter pins (8), nuts (9), eight washers (11) and **four bolts** from connecting links (12).
6. Have helper **remove door (7)**.

FOLLOW-ON MAINTENANCE:

None


FORWARD
7
8
9
11
12
12
11
10
VIEW A
20X26
CD45-5026-5PA

END OF TASK

2-194 DISASSEMBLE RESCUE HATCH LOWER DOOR 2-194

INITIAL SETUP

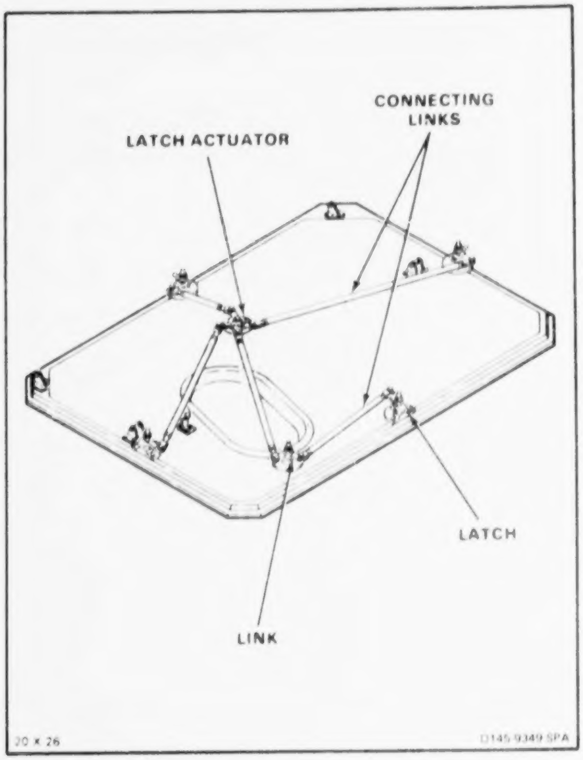
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

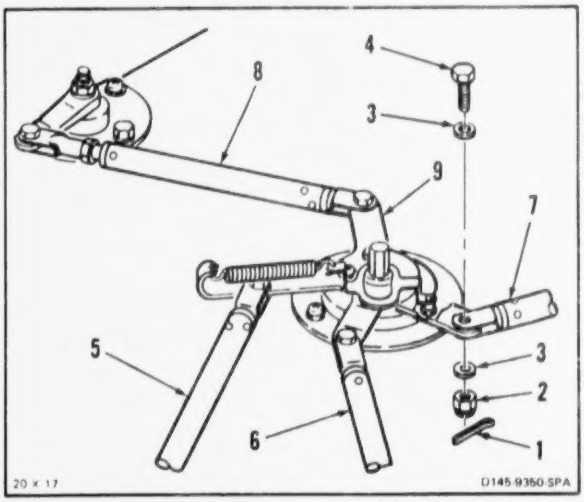
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


CONNECTING LINKS
LATCH ACTUATOR
LATCH
LINK
20 x 26
D145-9349-SPA

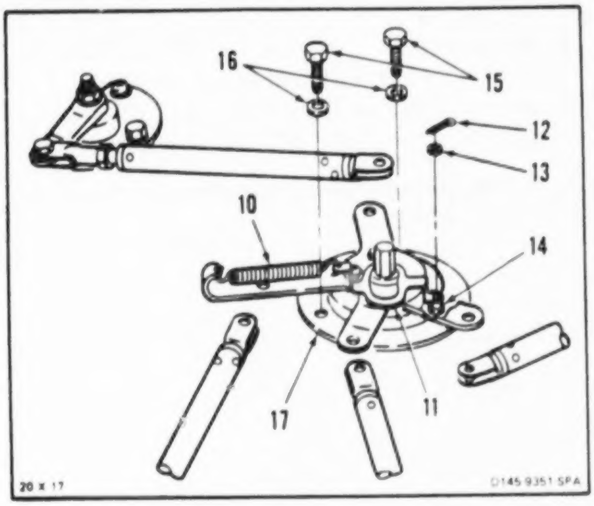
1 **Remove** four cotter pins (1), nuts (2), eight washers (3), and **four bolts (4)** securing four connecting links (5, 6, 7 and 8) to lever (9). Disconnect links.


4
8
3
9
7
5
3
2
6
1
20 x 17
D145-9350-SPA

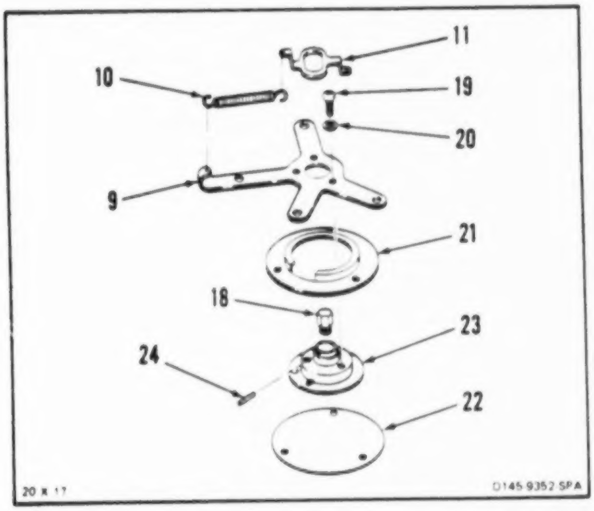
GO TO NEXT PAGE

2-194 DISASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-194

2. **Remove spring (10)** from cam (11).
3. **Remove** cotter pin (12), washer (13), and **cam (11)** from spring retaining pin (14).
4. **Remove pin (14),** two bolts (15), and washers (16). **Remove latch actuator (17).**


16
15
12
13
10
14
17
11
20 x 17
D145 9351 SPA

5. Disassemble latch actuator (17) as follows:
   a. **Remove spring (10)** from lever (9).
   b. **Remove cam (11)** from shaft (18).
   c. **Remove three screws (19),** washers (20), **and lever (9).**
   d. **Remove base ring (21)** and shim (22) from actuator (23).
   e. **Remove spring pin (24) and shaft (18).**


11
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19
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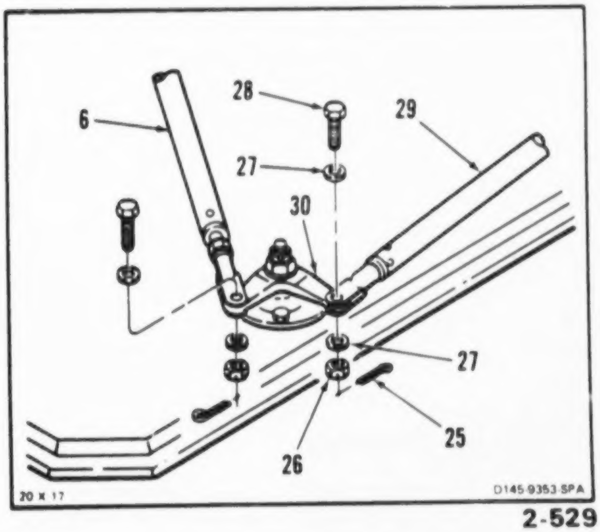
18
23
24
22
20 x 17
D145 9352 SPA

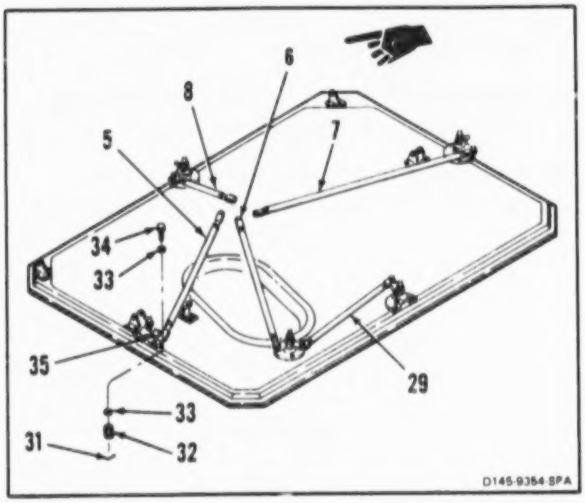
6. **Remove** two cotter pins (25), nuts (26), four washers (27), and **two bolts (28)** securing connecting links (6 and 29) to link (30). Disconnect connecting link (6).
7. **Measure and record length of connecting link (6).**


28
29
6
27
30
27
25
26
20 x 17
D145 9353 SPA

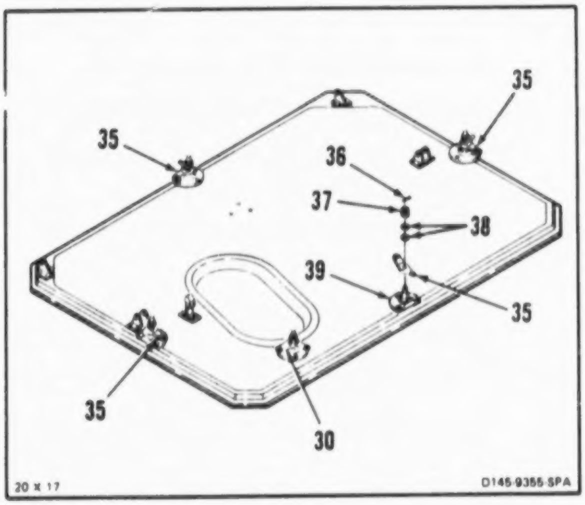
GO TO NEXT PAGE

2-194 DISASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-194

8. **Remove** four cotter pins (31), nuts (32), eight washers (33), and **four bolts (34)** securing connecting links (5, 6, 7, 8 and 29) to four latches (35). **Disconnect links.**
9. **Measure and record length of links (5, 6, 7, 8 and 29).**


6
8
7
5
34
33
35
29
33
31
32
D145-9354-SPA

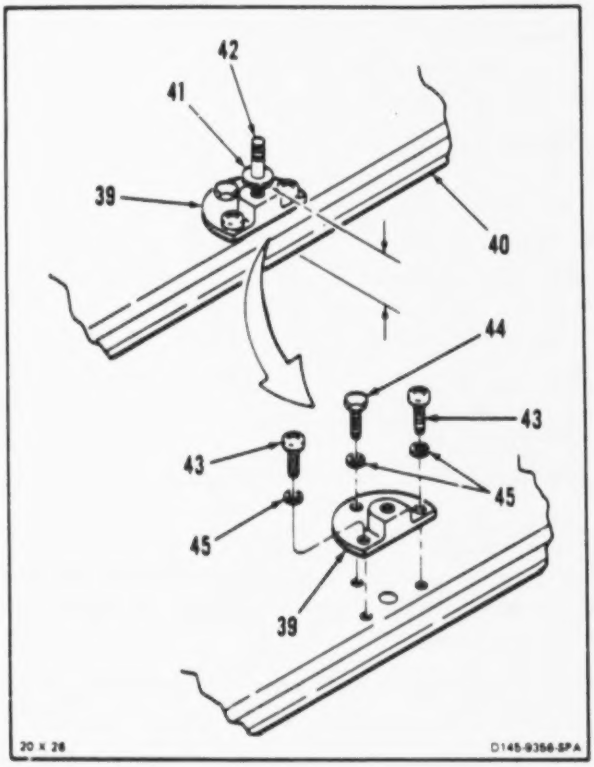
10. **Remove** 5 cotter pins (36), nuts (37), and 10 washers (38). **Tag and remove 4 latches (35), and link (30)** from 5 supports (39).


35
35
36
37
38
39
35
35
30
20 x 17
D145-9355-SPA

GO TO NEXT PAGE

2-194 DISASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-194

11. **Measure and record distance from edge of rescue hatch door (40) to shoulder (41) of shouldered stud (42).**
12. **Turn** shouldered **stud (42) counter-clockwise and remove** from support (39).
13. **Remove** 10 screws (43), 5 bolts (44), and 15 washers (45) from 5 supports (39). Remove supports.


42
41
39
40
44
43
43
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45
39
20 X 26
D145-9356-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-195 ASSEMBLE RESCUE HATCH LOWER DOOR 2-195

INITIAL SETUP

Applicable Configurations:
All

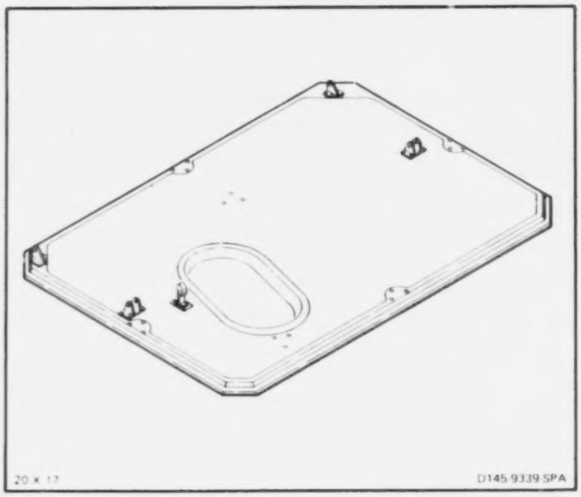
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

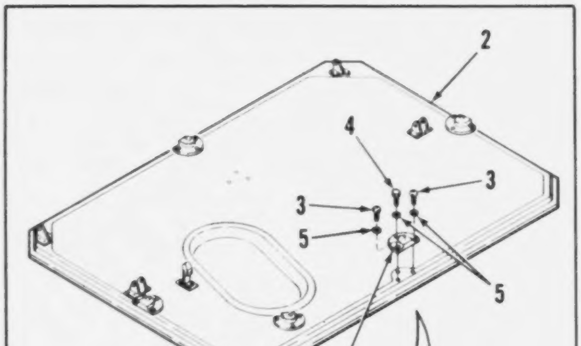
Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
Task 2-194



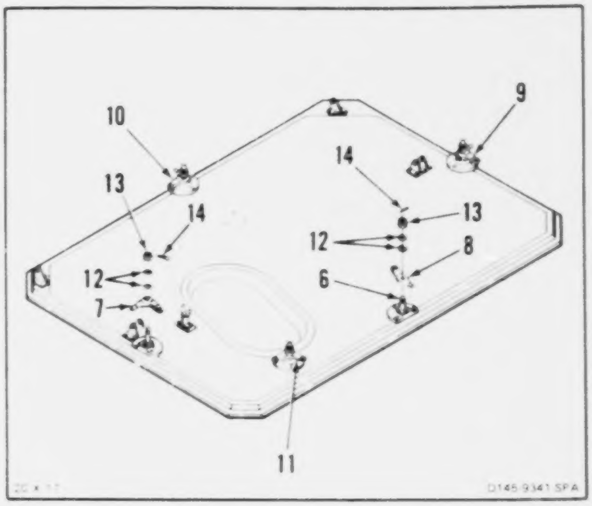
1. **Position five supports (1)** on rescue hatch lower door (2). **Install two screws (3), one bolt (4),** and three washers (5) **on each support.**
2. **Turn shouldered stud (6) clockwise and install** in each support (1).
3. **Adjust stud (6) in each support (1) to distance recorded in Task 2-194.**



GO TO NEXT PAGE

2-195 ASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-195

4. **Position four latches (7, 8, 9 and 10) and link (11)** on five shouldered studs (6). **Install** two washers (12), **nut (13),** and cotter pin (14) **on each stud (6). Tighten nuts (13) enough to allow latches and link to rotate freely.**


10
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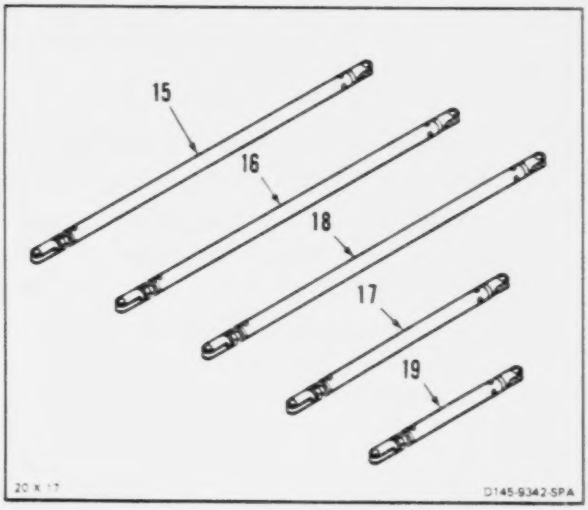
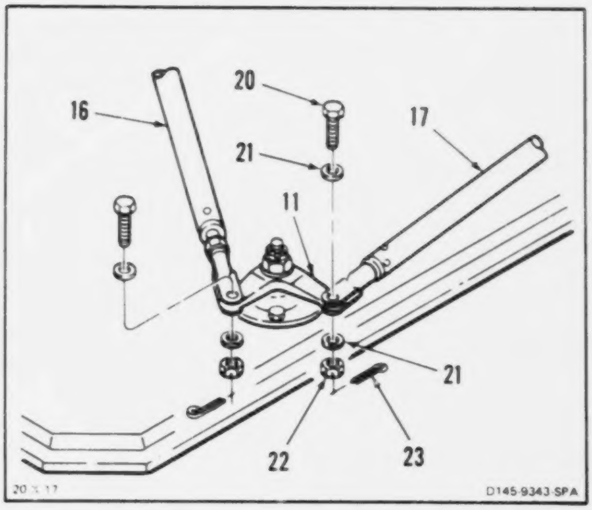
11
20 x 17
D145-9341-SPA

5. **If connecting link (15, 16, 17, 18 or 19) is a replacement, adjust length as recorded in Task 2-194.**


15
16
18
17
19
20 x 17
D145-9342-SPA

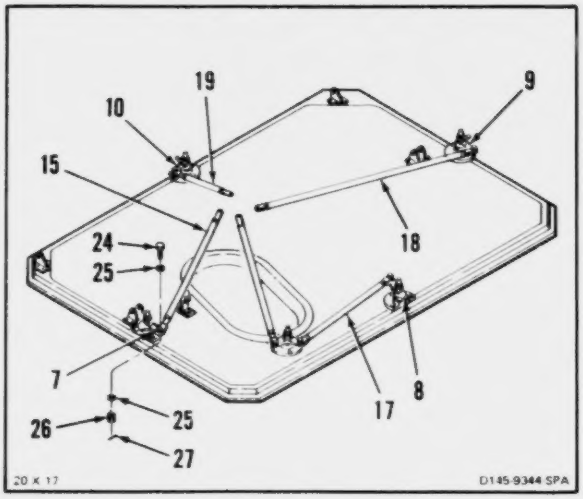
6. **Position ends of two connecting links (16 and 17) on link (11). Install bolt (20),** two washers (21), nut (22), and cotter pin (23) **on each connecting link.**


20
16
17
21
11
21
22
23
20 x 17
D145-9343-SPA

GO TO NEXT PAGE

2-195 ASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-195

7. **Position ends of four connecting links (15, 17, 18 and 19) on latches (7, 8, 9 and 10). Install bolt (24),** two washers (25), nut (26), and cotter pin (27) **in each connecting link.**

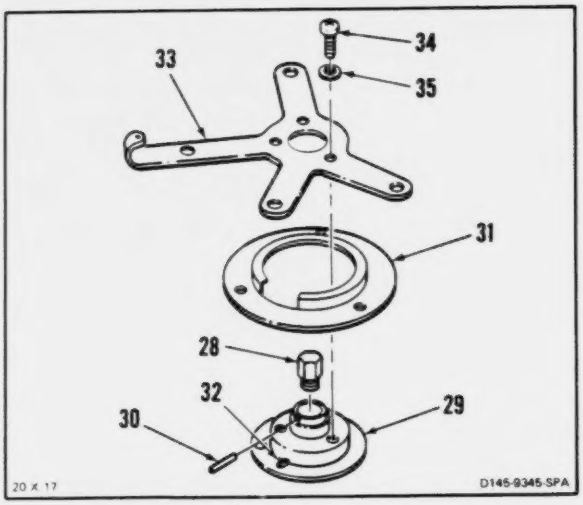

19
9
10
15
18
24
25
7
17
8
26
25
27
20 X 17
D145-9344-SPA

8. Assemble latch actuator (29) as follows:

   a. **Position shaft (28) in actuator (29). Install spring pin (30).**

   b. **Position base ring (31) on actuator (29) so that key (32) on actuator fits in cutout in base ring.**

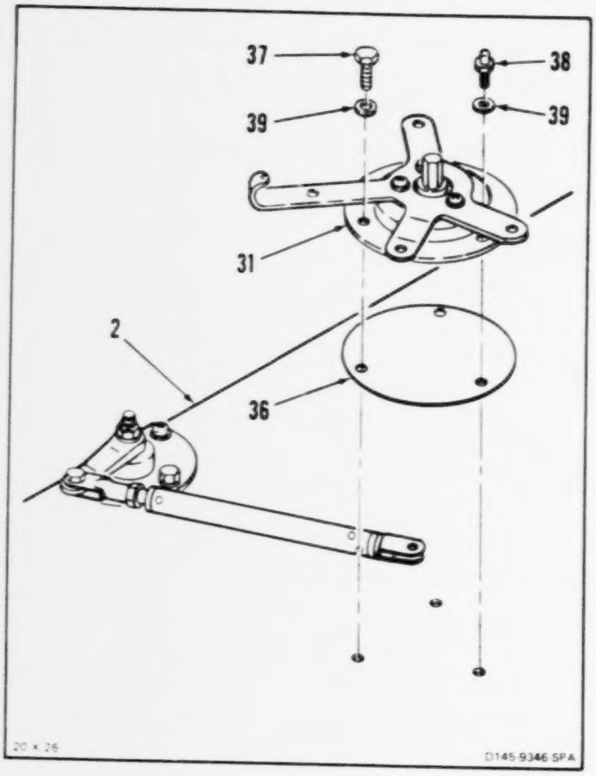
   c. **Align three holes in lever (33) and actuator (29). Install three screws (34)** and washers (35).


34
33
35
31
28
32
29
30
20 X 17
D145-9345-SPA

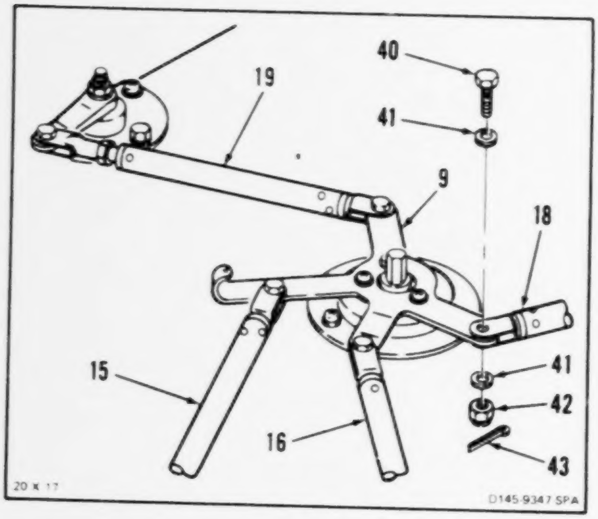
GO TO NEXT PAGE

2-195 ASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-195

9. **Align three holes in base ring (31), shims (36), and door (2). Install two bolts (37),** pin (38), and three washers (39).


37
38
39
39
31
2
36
20 x 26
D145 9346 SPA

10. **Position ends of four connecting rods (15, 16, 18 and 19) on lever (9). Install bolt (40),** two washers (41), nut (42), and cotter pin (43) **in each** connecting rod.


40
19
41
9
18
15
41
42
16
43
20 x 17
D145 9347 SPA

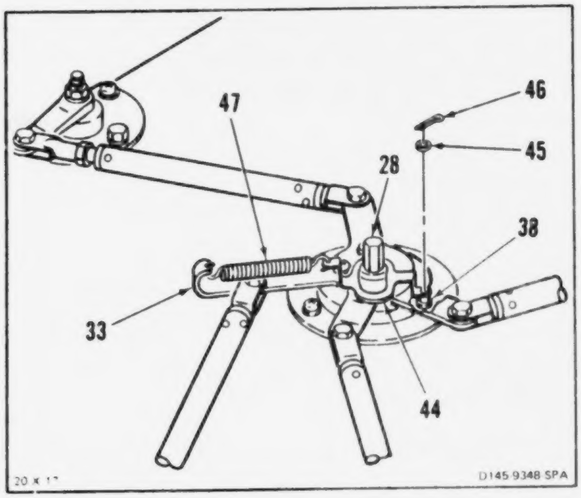
GO TO NEXT PAGE

2-195 ASSEMBLE RESCUE HATCH LOWER DOOR (Continued) 2-195

11. **Position cam (44) on shaft (28) and pin (38). Install washer (45) and cotter pin (46)** on pin.

12. **Install spring (47)** on cam (44) and arm of lever (33).

INSPECT


47
46
45
28
38
33
44
20 X 1?
D145 9348 SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-196 REMOVE RESCUE HATCH LOWER DOOR GEARBOX 2-196

INITIAL SETUP

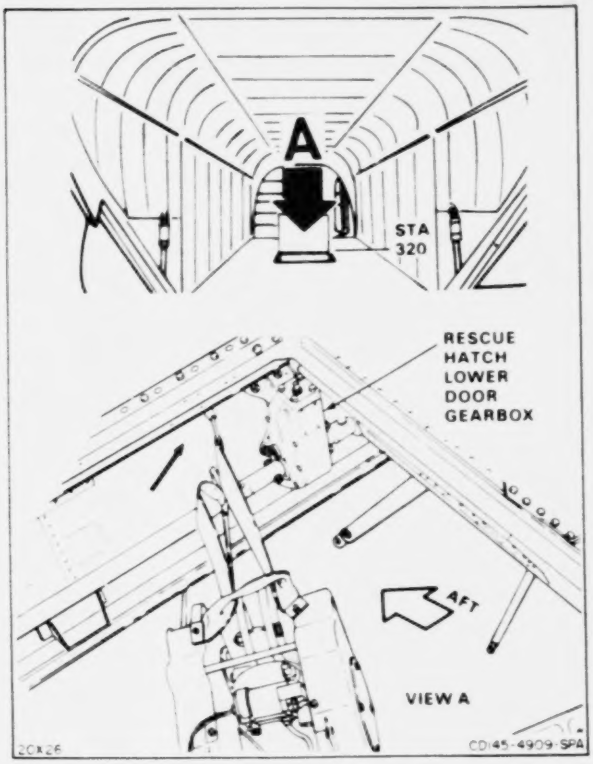
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

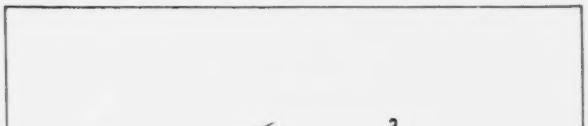
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Rescue Hatch Lower Door Removed (Task 2-193)
Rescue Hatch Upper Door Opened


A
STA 320
RESCUE HATCH LOWER DOOR GEARBOX
AFT
VIEW A
20X26
CD145-4909-SPA

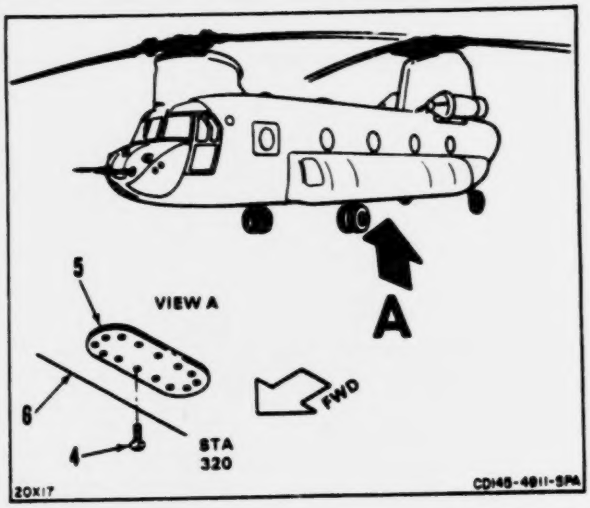
1. **Unstow cargo hook (1)** by releasing strap (2) and lowering hook. Raise strap up out of way on structure (3).


3
2
DOWN
1
20X26
CD145-4910-SPA

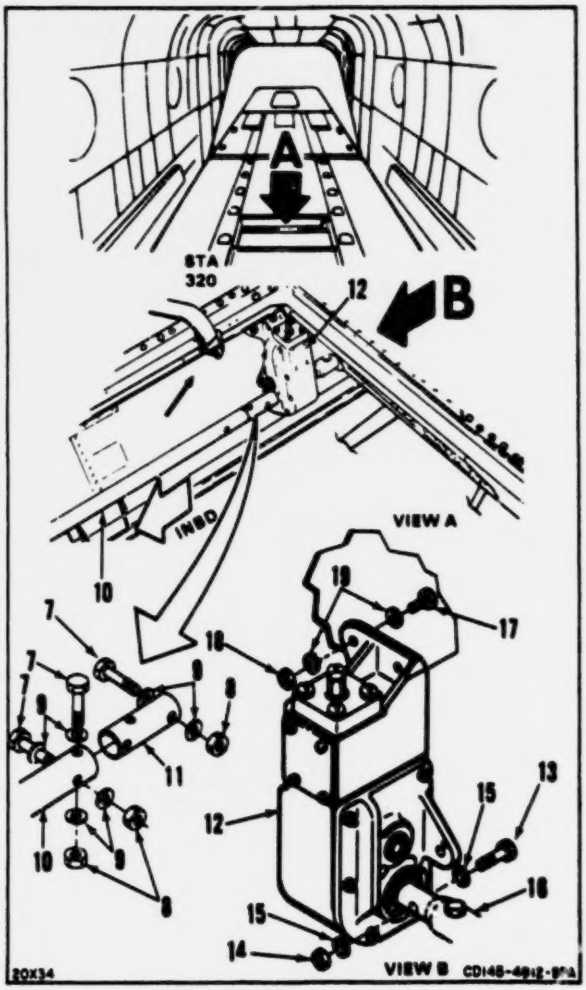
GO TO NEXT PAGE

2-196 REMOVE RESCUE HATCH LOWER DOOR GEARBOX (Continued) 2-196

2. **Remove 14 screws (4) and access cover (5)** aft of lower hatch door (6).


5
VIEW A
A
6
FWD
4
STA
320
20X17
CD145-4911-SPA

3. **Remove three bolts (7),** nuts (8), and six washers (9) from inboard drive shaft (10) and coupling (11).
4. **Push coupling (11) inboard** in drive shaft (10) until it clears gearbox (12).
5. **Remove bolt (13),** nut (14), and two washers (15) from outboard drive shaft (16).
6. **Remove four bolts (17),** nuts (18), eight washers (19), **and gearbox (12).**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320
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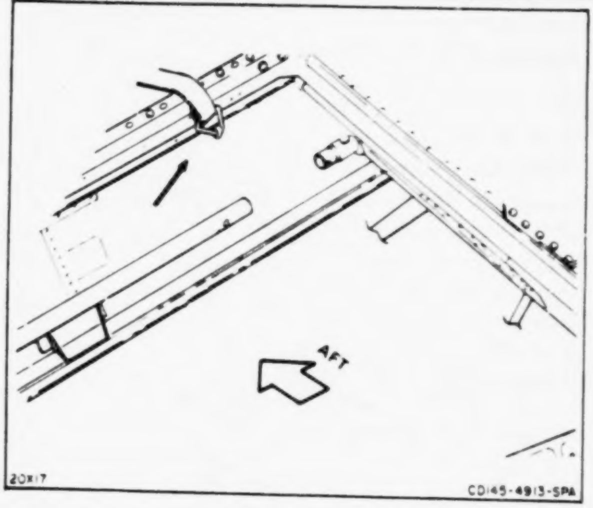
20X34
VIEW B
CD145-4912-SPA

GO TO NEXT PAGE

2-196 REMOVE RESCUE HATCH LOWER DOOR GEARBOX (Continued) 2-196

FOLLOW-ON MAINTENANCE:

None


AFT
20X17
CD145-4913-SPA

END OF TASK

2-197 DISASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-197

INITIAL SETUP

Applicable Configurations:

All

Tools:

Sheet Metal Shop Set,
NSN 4920-00-166-5505
Aluminum Rod, 1/2-Inch X 6-Inches
Arbor Press, Bench Mounted
Retaining Ring Pliers
Soft Jawed Vise

Materials:

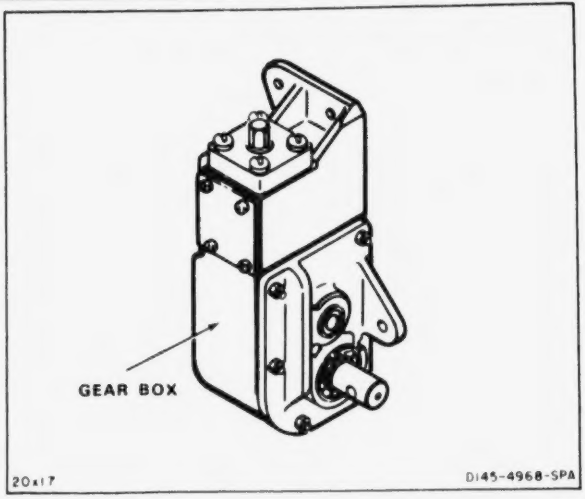
Cloths (E135)

Personnel Required:

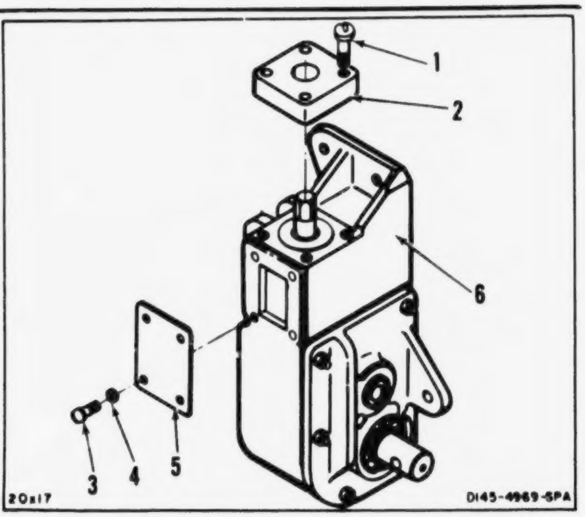
67U20 Medium Helicopter Repairer

Equipment Condition:

Off Helicopter Task


GEAR BOX
20x17
D145-4968-SPA

1. **Remove** four screws (1) and **thrust cap (2).**
2. **Remove** four screws (3), washers (4), and **nameplate (5)** from housing (6).


1
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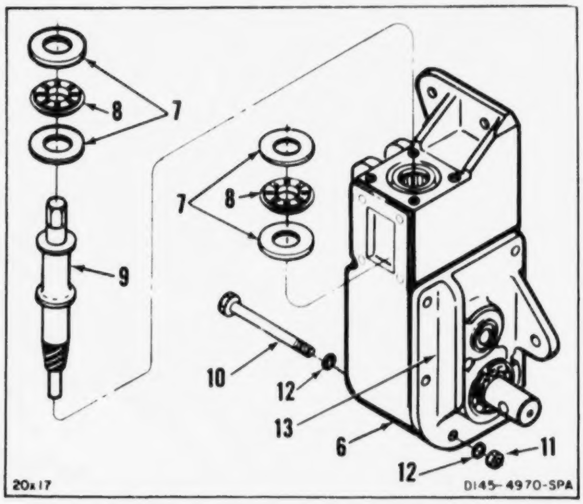
20x17
D145-4969-SPA

3. **Remove** four seats (7), two retainers, rollers (8), and **pinion (9).**
4. **Remove five bolts (10),** nuts (11), and 10 washers (12) from cover (13) and housing (6).


8
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20x17
D145-4970-SPA

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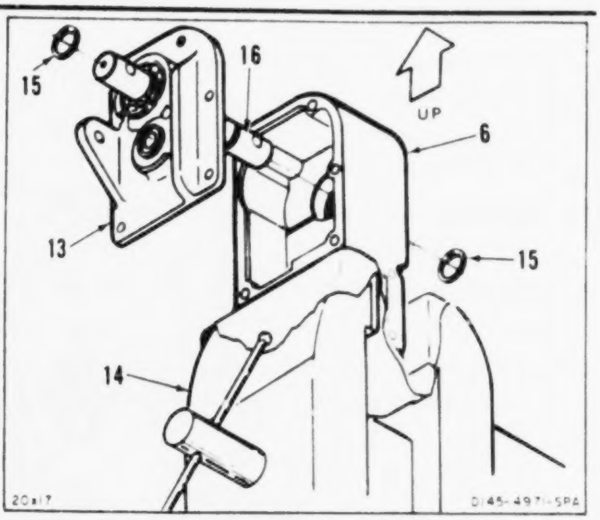
2-197 DISASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) (Continued) 2-197

5. Wrap housing (6) in cloths (E135). Position housing in vise (14), with cover (13) up.
6. Remove two retaining rings (15) from gearshaft (16). Use retaining ring pliers.
7. Tap end of gearshaft (16) until cover (13) is free of housing (6). **Remove cover with gearshaft attached.** Use hammer and aluminum rod.
8. Remove housing (6) and cloths (E135) from vise (14).


15
16
UP
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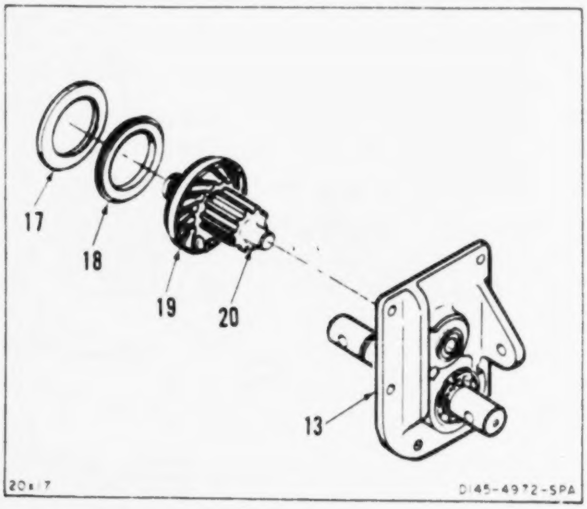
14
20x17
D145-4971-SPA

9. Remove bearing (17) and retainer and roller (18) from spiroid gear (19).
10. **Remove gearshaft (20), with gear (19)** attached, from cover (13).


17
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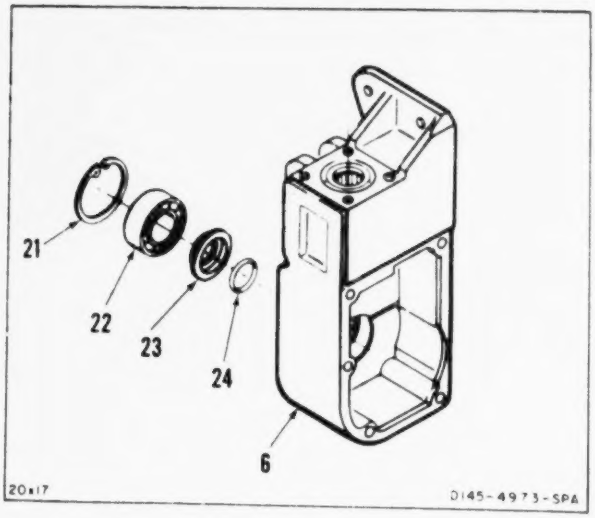
20x17
D145-4972-SPA

11. Remove retaining ring (21) from housing (6). Use retaining ring pliers.
12. **Remove bearing (22)** from housing (6). Use arbor press.
13. Remove seal (23) and packing (24) from housing (6).


21
22
23
24
6
20x17
D145-4973-SPA

GO TO NEXT PAGE

2-197 DISASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) (Continued) 2-197

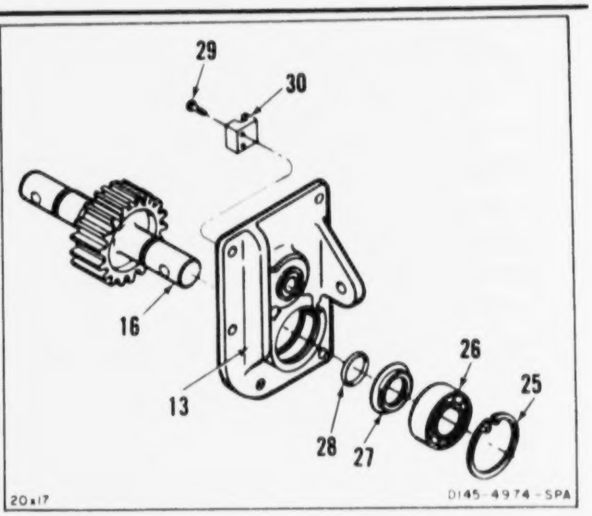
14. **Remove gearshaft (16)** from cover (13). Use hammer.

15. Remove retaining ring (25) from cover (13). Use retaining ring pliers.

16. **Remove ball bearing (26)** from cover (13). Use arbor press.

17. **Remove seal (27)** and packing (28) from cover (13).

18. Cut lockwire and **remove** two screws (29) and **bearing support (30)** from cover (13).


29
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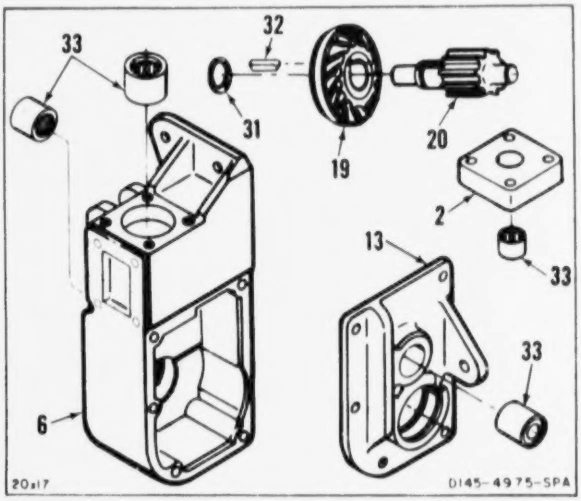
25
28
27
20x17
D145-4974-SPA

19. **Remove** retaining ring (31) and **key (32)** from spiroid gear (19) and gearshaft (20). Use retaining ring pliers.

20. **Remove four roller bearings (33)** from thrust cap (2), cover (13), and housing (6). Use arbor press.


33
32
31
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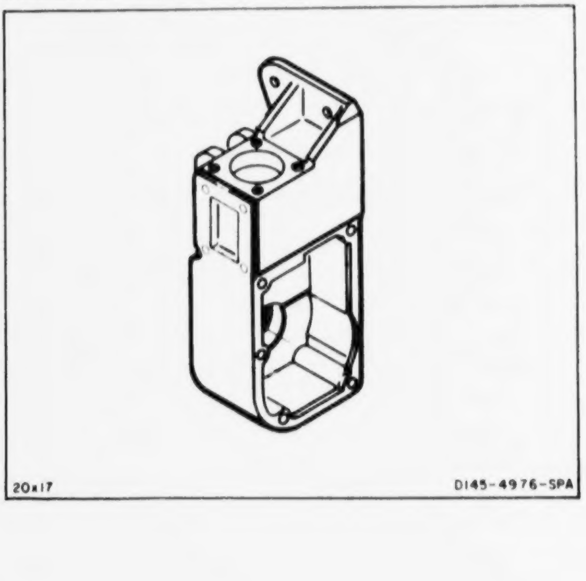
6
20x17
D145-4975-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
D145-4976-SPA

END OF TASK

2-198 INSPECT RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-198

INITIAL SETUP

Applicable Configurations:
All

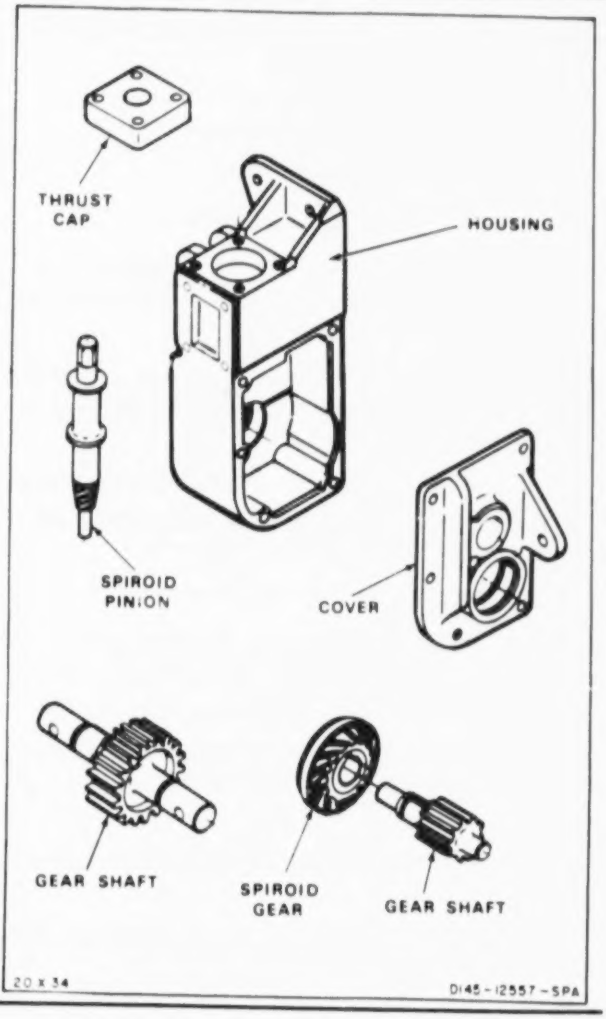
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Telescoping End Gage
Hole Gage, 0.200 to 0.300 Inch

Materials:
None

Personnel Required:
67U30 Inspector

References:
TM 55-1520-240-23P

Equipment Condition:
Rescue Hatch Lower Door Gearbox
Disassembled (Task 2-197)


THRUST CAP
HOUSING
SPIROID PINION
COVER
GEAR SHAFT
SPIROID GEAR
GEAR SHAFT
20 x 34
D145-12557-SPA

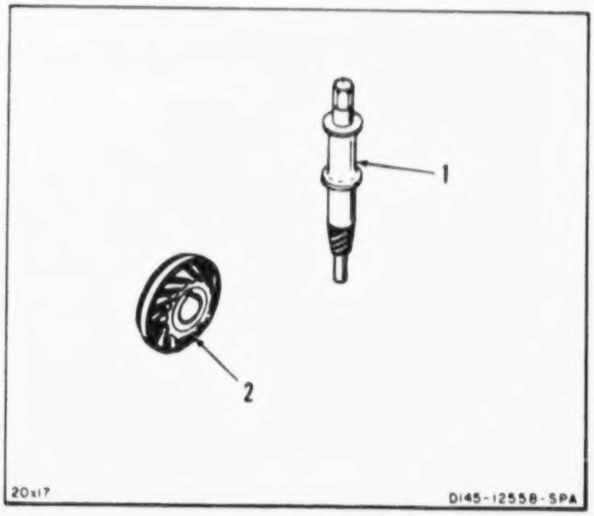
NOTE

Inspection steps in this task cover only those parts of the gearbox that are most subject to wear. All parts shall also be inspected for obvious damage such as cracks, corrosion, and damaged threads.

NOTE

Spiroid pinion, and spiroid gear are a matched set. If one is damaged, both must be replaced.

1. Inspect spiroid pinion (1) and spiroid gear (2). There shall be no chipped or broken teeth. There shall be no spalling of bearing surfaces on spiroid pinion.


1
2
20x17
D145-12558-SPA

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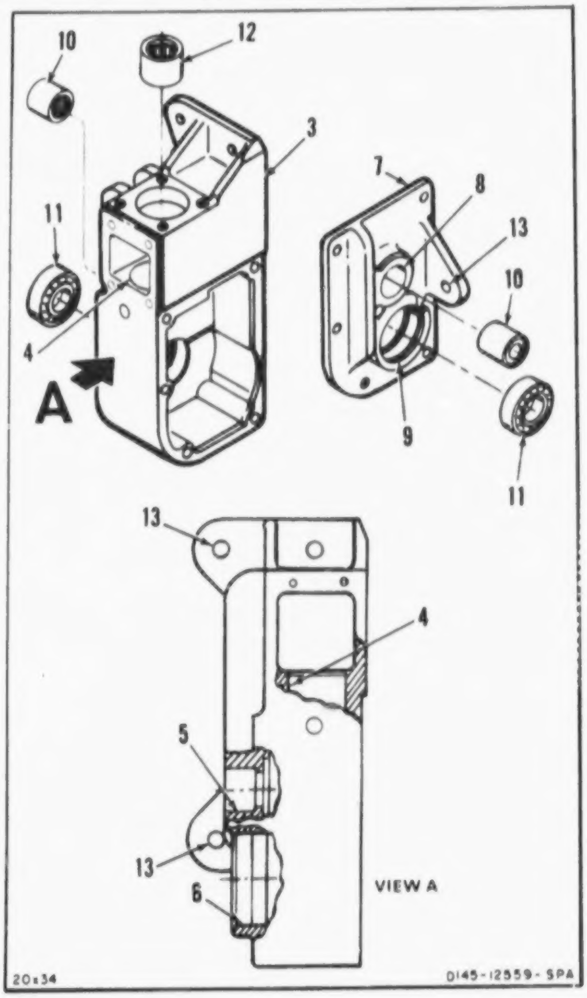
2-198 INSPECT RESCUE HATCH LOWER DOOR GEARBOX (AVIM) (Continued) 2-198

NOTE

Housing and cover are a matched set. If one is damaged, both must be replaced.

2. **Inspect housing (3)** as follows.
   a. **Measure diameter of spiroid pinion bearing bore (4).** Diameter shall not be more than 0.995 inch.
   b. **Measure diameter of upper gearshaft bearing bore (5).** Diameter shall not be more than 0.746 inch.
   c. **Measure diameter of lower gearshaft bearing bore (6).** Diameter shall not be more than 1.626 inches.
3. **Inspect cover (7)** as follows.
   a. **Measure diameter of upper gearshaft bearing bore (8).** Diameter shall not be more than 0.746 inch.
   b. **Measure diameter of lower gearshaft bearing bore (9).** Diameter shall not be more than 1.626 inches.
4. **Inspect all bearing bores.** Bores shall not be scored.
5. **Inspect bearings (10, 11, and 12)** (TM 55-1500-322-24).
6. **Inspect housing (3) and cover (4)** in area of four **mounting holes (13).** There shall be no cracks. **Measure diameter** of holes. Diameter shall not be more than 0.257 inch.



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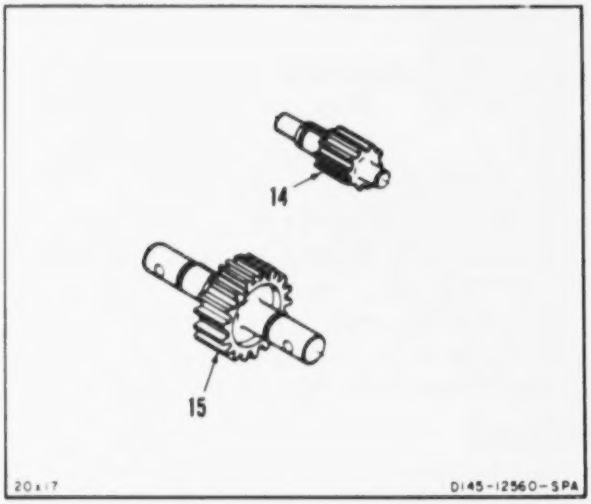
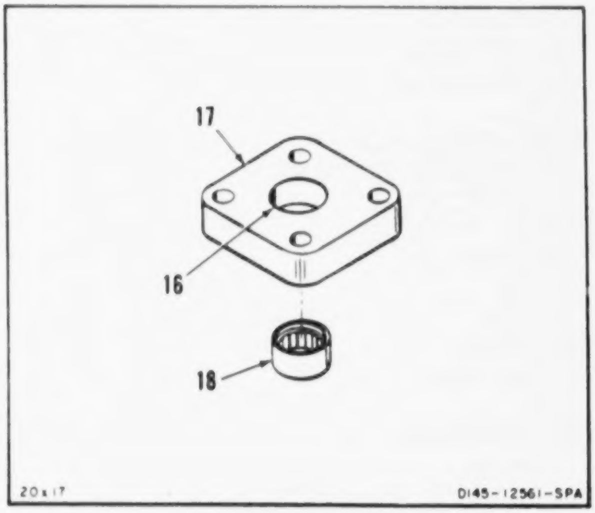
2-198 INSPECT RESCUE HATCH LOWER DOOR GEARBOX (AVIM) (Continued) 2-198

7. Inspect gearshafts (14 and 15). There shall be no chipped or cracked teeth. There shall be no spalling of bearing contact surfaces.


14
15
20x17
D145-12560-SPA

8. **Inspect bearing bore (16)** in thrust cap (17). Bore shall not be scored. **Measure diameter** of bore. Diameter shall not be more than 0.620 inch.
9. Inspect bearing (18) (TM 55-1500-322-24).


17
16
18
20x17
D145-12561-SPA

FOLLOW-ON MAINTENANCE
None

END OF TASK

2-199 ASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-199

INITIAL SETUP

Applicable Configurations:
All

Tools:
- Sheet Metal Shop Set, NSN 4920-00-166-5505
- Aluminum Rod, 1/2-Inch Diameter X 6-Inches
- Arbor Press, Bench Mounted
- Retaining Ring Pliers
- Soft Jawed Vise
- Torque Wrench, 5 to 50 Inch-Pounds

Materials:
- Adhesive (E43)
- Gloves (E186)
- Grease (E256)
- Lockwire (E231)
- Cloths (E135)
- Sealant (E336)
- Tongue Depressors (E424)

Personnel Required:
Medium Helicopter Repairer

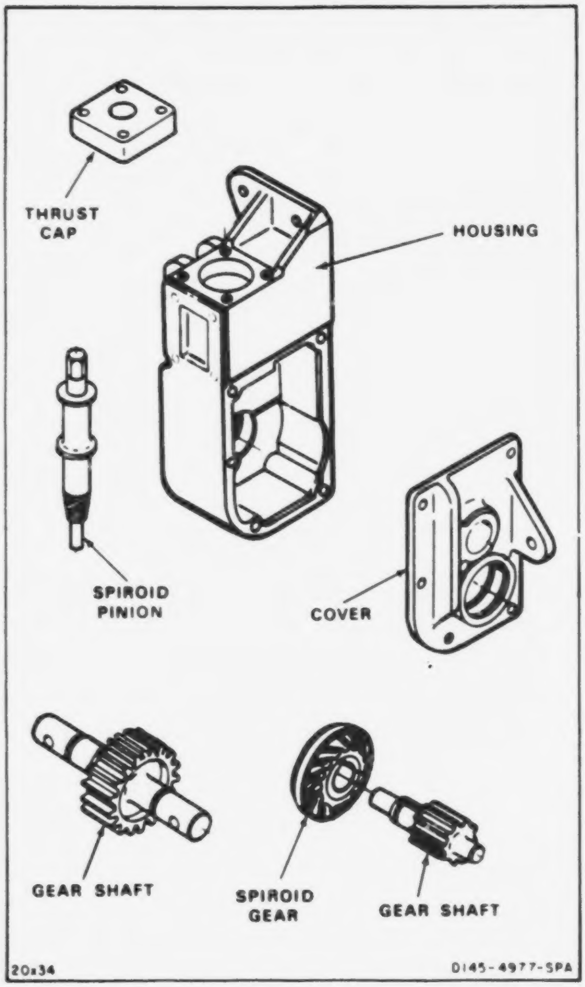
Parts:
- Packings
- Seals

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

Adhesive (E43) and sealant (E336) are flammable and give off toxic fumes. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. In case of contact immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



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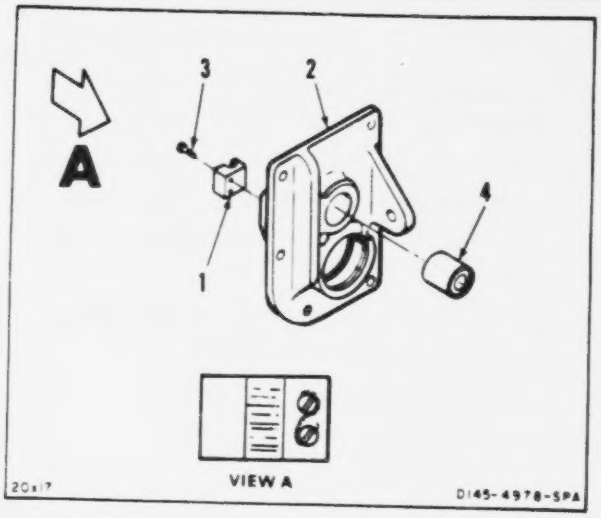
2-199 ASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-199 (Continued)

1. **Position support (1)** on cover (2) and **install two screws (3).** Lockwire screws using lockwire (E231).
2. **Install roller bearing (4)** in cover (2). Use arbor press.


A
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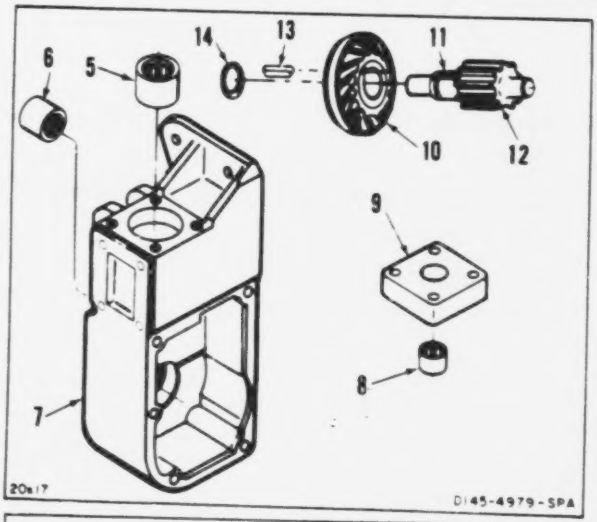
VIEW A
20x17
D145-4978-SPA

3. **Install roller bearing (5) and roller bearing (6)** in housing (7). Use arbor press.
4. **Install roller bearing (8)** in thrust cap (9). Use arbor press.
5. **Position spiroid gear (10)** in groove (11) **on gearshaft (12). Install key (13)** and retaining ring (14). Use retaining ring pliers.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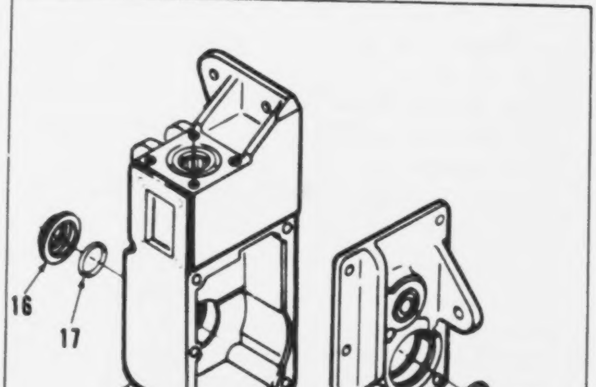
20x17
D145-4979-SPA

6. Apply adhesive (E43) to mating surface of seal (15) and cover (2). Wear gloves (E186).
7. Apply adhesive (E43) to mating surface of seal (16) and housing (7).
8. Install packing (17) in seal (16), and **install seal** in housing (7).
9. Install packing (18) in seal (15) and **install seal** in cover (2).


16
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20x17
D145-4980-SPA

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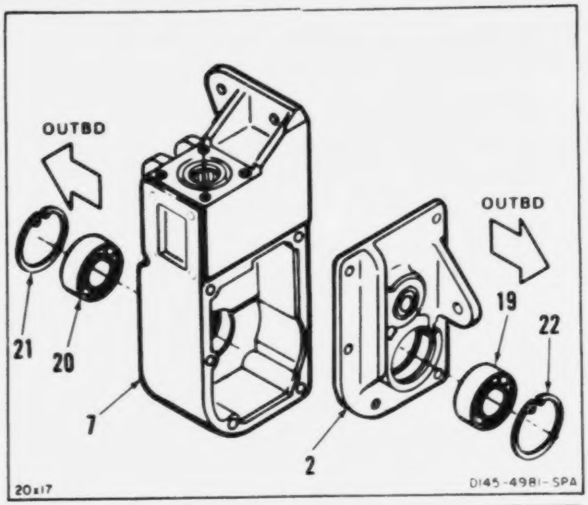
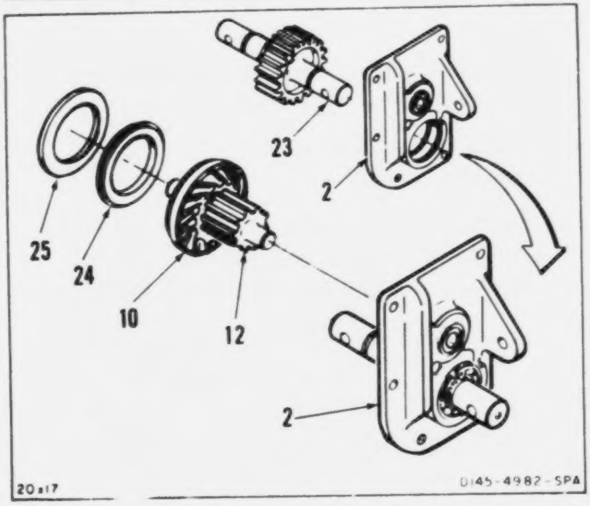
2-199 ASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-199 (Continued)

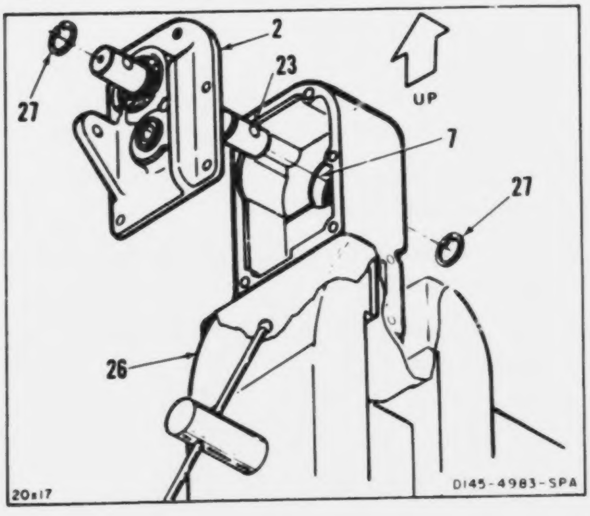
10. **Install bearing (19),** dust shield outboard in cover (2). Use arbor press.
11. **Install bearing (20),** dust shield outboard in housing (7). Use arbor press.
12. Install retaining ring (21). Use retaining ring pliers.
13. Install retaining ring (22). Use retaining ring pliers.



14. **Install gearshaft (23)** in cover (2). Use hammer.
15. **Install gearshaft (12) with spiroid gear (10) attached** in cover (2).
16. Install retainer and roller (24) and bearing (25) on end of spiroid gear (10).



17. Wrap housing (7) in cloths (E135). Position housing in vise (26) with lower part of housing up.
18. Apply sealant (E336) to mating surfaces of cover (2) and housing (7). Use tongue depressor (E424). Wear gloves (E186).
19. Pack lower part of housing (7) with grease (E256). Use tongue depressor (E424).
20. **Position cover (2)** with gearshaft (23) on top **in housing (7).** Use hammer and aluminum rod to seat cover.
21. **Install two retaining rings (27)** on gearshaft (23). Use retaining ring pliers.
22. Remove housing (7) and cloths (E135) from vise (26).



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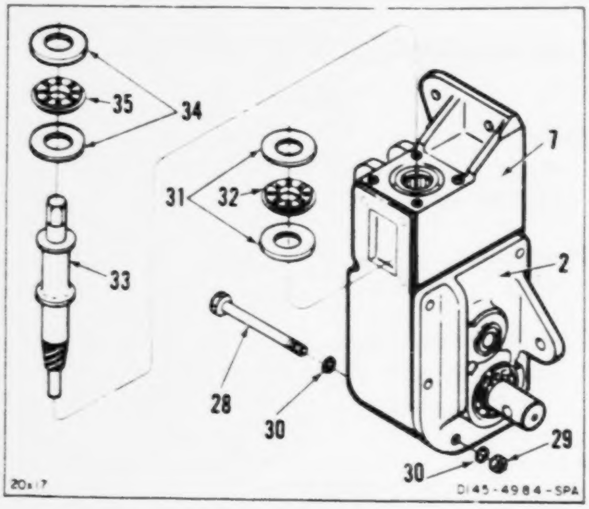
2-199 ASSEMBLE RESCUE HATCH LOWER DOOR GEARBOX (AVIM) 2-199 (Continued)

23. **Install five bolts (28),** nuts (29), and 10 washers (36) in housing (7) and cover (2). **Torque nuts to 30 inch-pounds.**
24. Install two seats (31) and retainer and roller (32) in housing (7).
25. **Position pinion (33)** in housing (7). Install two seats (34) and retainer and roller (35).


35
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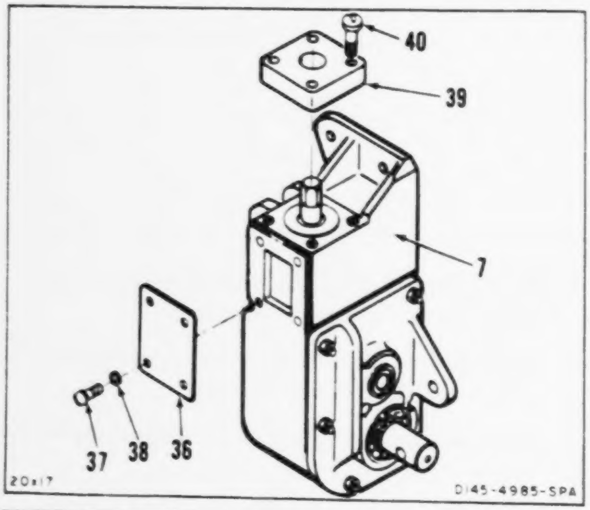
D145-4984-SPA

26. Pack upper part of housing (7) with grease (E190). Use tongue depressor (E424).
27. **Position nameplate (36)** on housing (7). **Install four screws (37)** and washers (38).
28. **Position thrust cap (39)** on housing (7). **Install four screws (40).**


40
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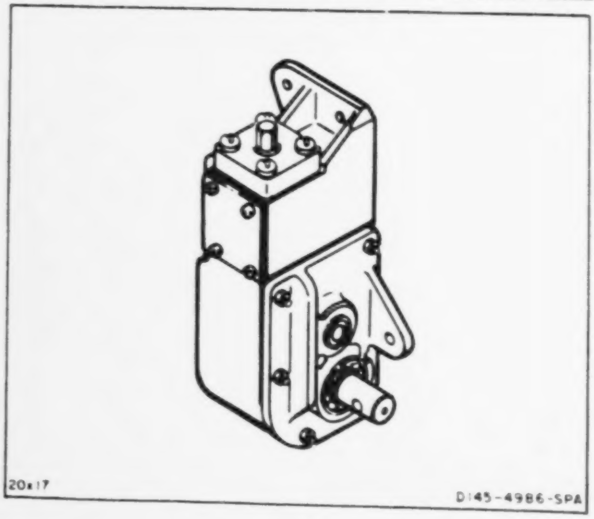
D145-4985-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
D145-4986-SPA

END OF TASK

2-200 INSTALL RESCUE HATCH LOWER DOOR GEARBOX 2-200

INITIAL SETUP

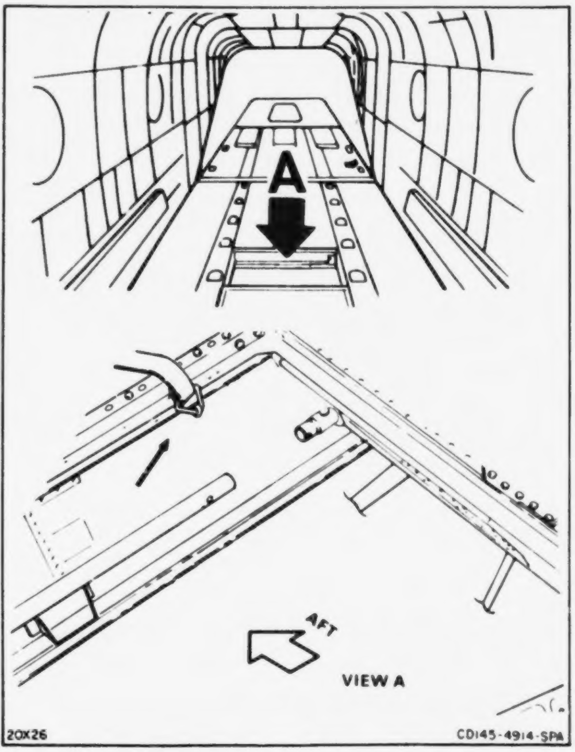
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P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20X26
CD145-4914-SPA

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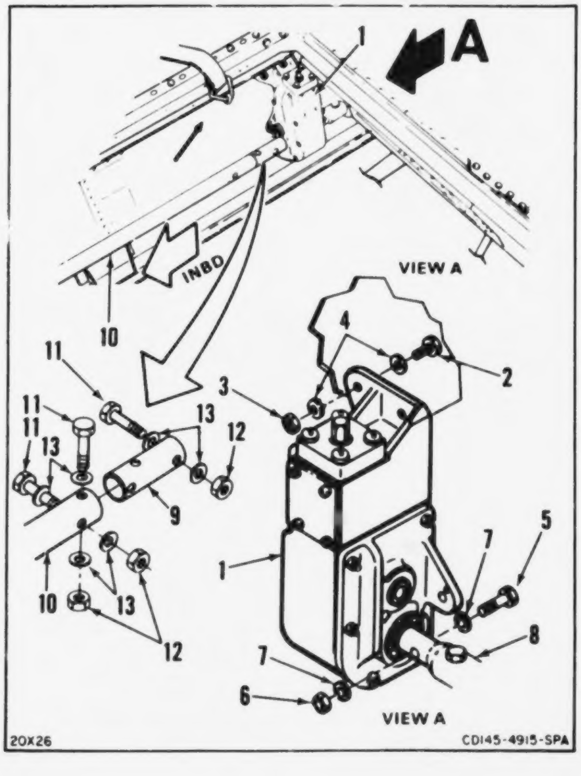
1. **Position gearbox (1). Install four bolts (2),** nuts (3), and eight washers (4).
2. **Install bolt (5),** nuts (6), and two washers (7) on outboard drive shaft (8).
3. **Position coupling (9) and inboard drive shaft (10)** on gearbox (1).
4. **Install three bolts (11),** nuts (12), and six washers (13) on inboard drive shaft (10).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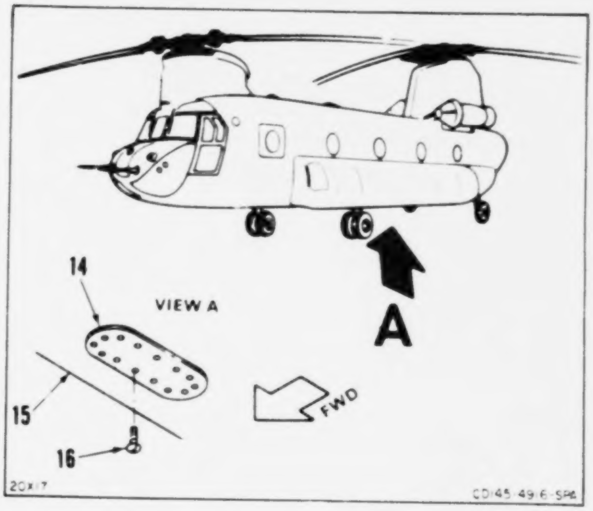
VIEW A
20X26
CD145-4915-SPA

GO TO NEXT PAGE

2-200 INSTALL RESCUE HATCH LOWER DOOR GEARBOX (Continued) 2-200

5. **Position access cover (14)** aft of hatch (15). **Install 14 screws (16).**


14
VIEW A
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FWD
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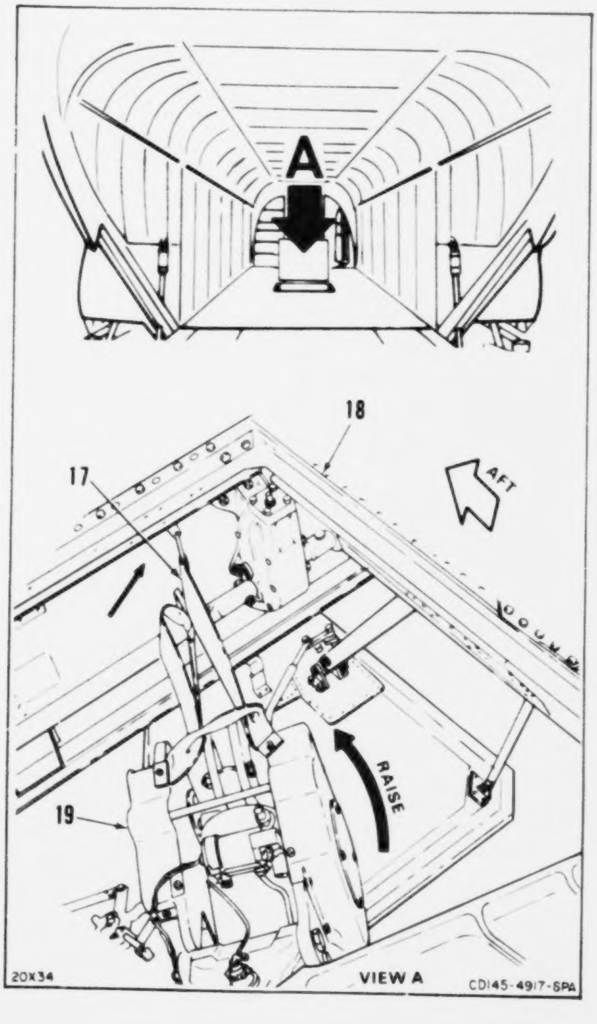
20X17
CD145-4916-5PA

6. Lower strap (17) off structure (18). Raise cargo hook (19) and attach strap (17) to **stow cargo hook.**

INSPECT


A
18
17
AFT
RAISE
19
20X34
VIEW A
CD145-4917-6PA

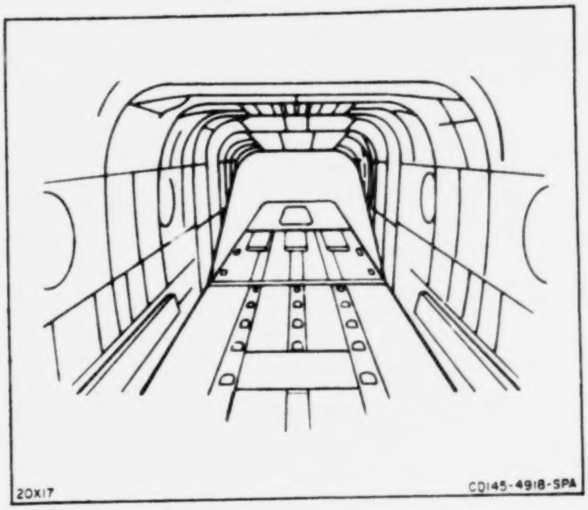
GO TO NEXT PAGE

2-200 INSTALL RESCUE HATCH LOWER DOOR GEARBOX (Continued) 2-200

FOLLOW-ON MAINTENANCE:

Close rescue hatch upper door.

Install rescue hatch lower door (Task 2-203).



END OF TASK

2-201 REMOVE RESCUE HATCH LOWER DOOR WELDED OR RIGID LINKS 2-201

INITIAL SETUP

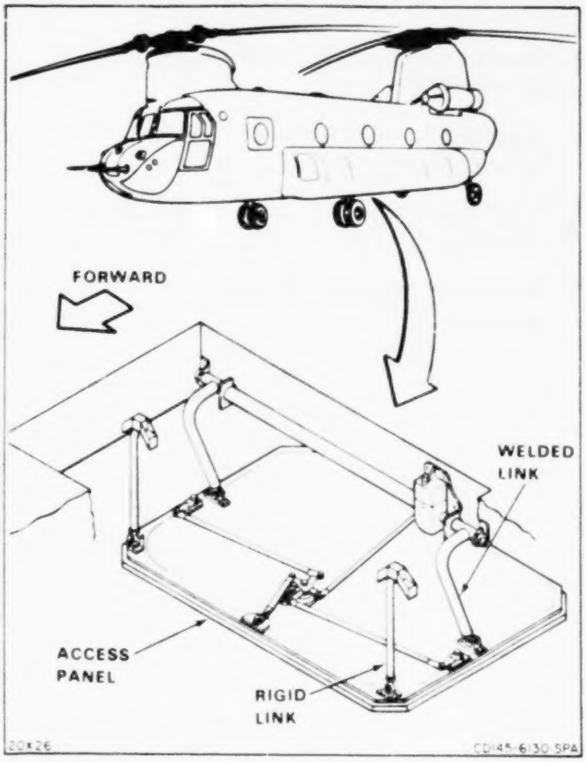
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Rescue Hatch Lower Door at Lowest Position (Task 2-193)
Rescue Hatch Lower Door Actuating Gearbox Removed (Task 2-196)

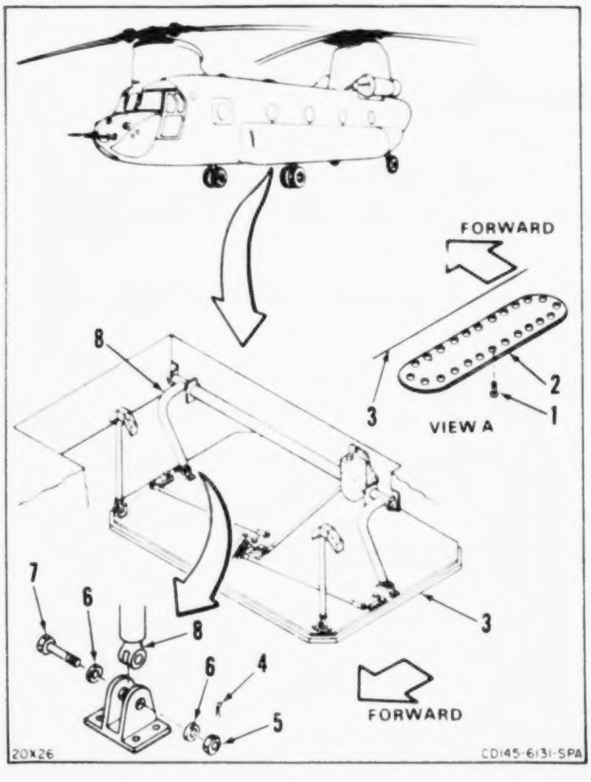

FORWARD
WELDED LINK
ACCESS PANEL
RIGID LINK
20X26
CD145-6130-SPA

REMOVE WELDED LINK

NOTE

Procedure is same to remove both welded links. Removal of welded link on left side is shown here.

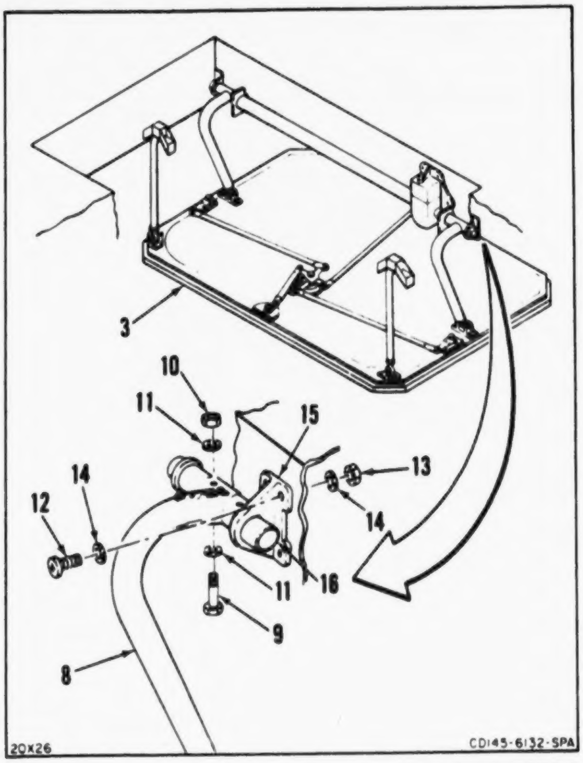
1. **Remove** 14 screws (1) and **access panel (2)** aft of rescue hatch lower door (3).
2. Remove cotter pin (4), nut (5), two washers (6) and bolt (7). **Disconnect link (8).**


FORWARD
8
2
3
VIEW A
1
7
6
8
6
4
5
3
FORWARD
20X26
CD145-6131-SPA

GO TO NEXT PAGE

2-201 REMOVE RESCUE HATCH LOWER DOOR WELDED OR RIGID LINKS (Continued) 2-201

3. **Remove two bolts (9),** nuts (10), and four washers (11).
4. **Remove four screws (12),** nuts (13), and eight washers (14).
5. Support door (3) and **remove link (8)** with bracket (15).
6. **Remove bracket (15) and shaft (16) from link (8).**

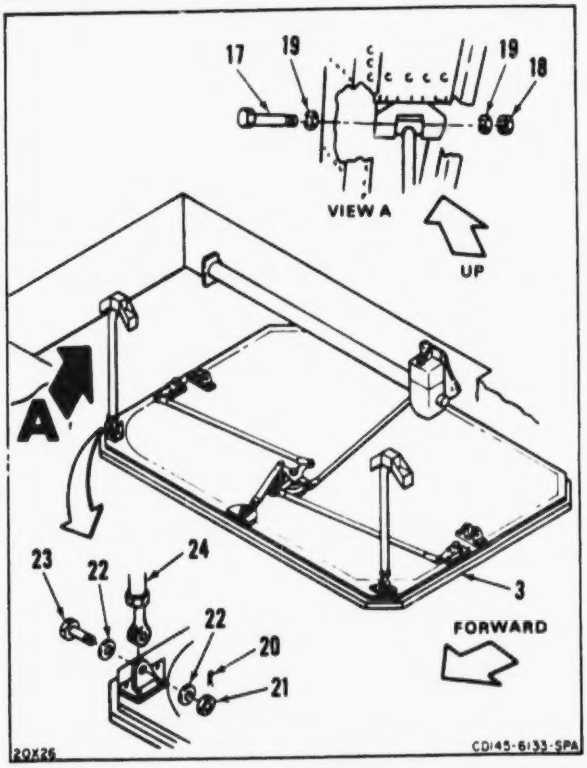

3
10
11
15
14
12
13
14
11
16
9
8
20X26
CD145-6132-SPA

REMOVE RIGID LINK

NOTE

Procedure is same to remove both rigid links. Rigid link on left side is shown here.

7. **Remove bolt (17),** nut (18), and two washers (19).
8. **Remove** cotter pin (20), nut (21), two washers (22), and **bolt (23).**
9. Support door (3) and **remove link (24).**

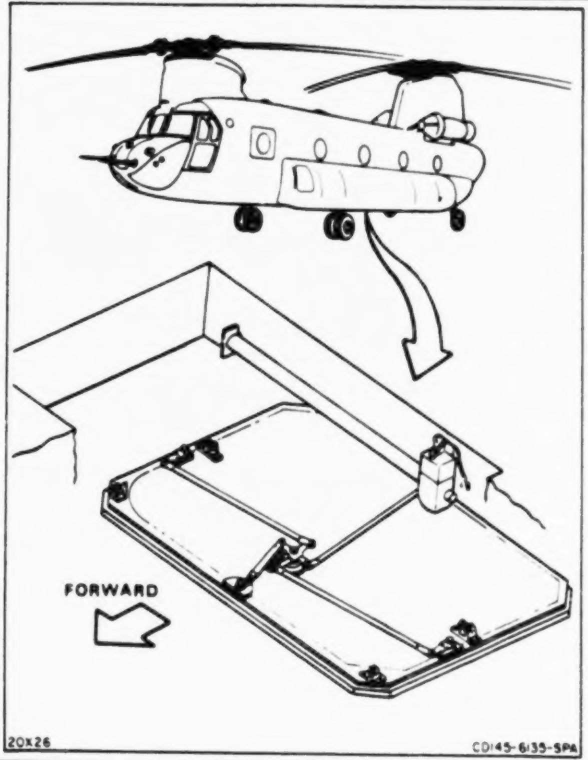

17
19
19
18
VIEW A
UP
A
23
22
24
22
20
21
3
FORWARD
20X26
CD145-6133-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-202 INSTALL RESCUE HATCH LOWER DOOR WELDED OR RIGID LINKS 2-202


FORWARD
20X26
CD145-6135-SPA

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5080-00-323-4692

Materials:
None

Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer

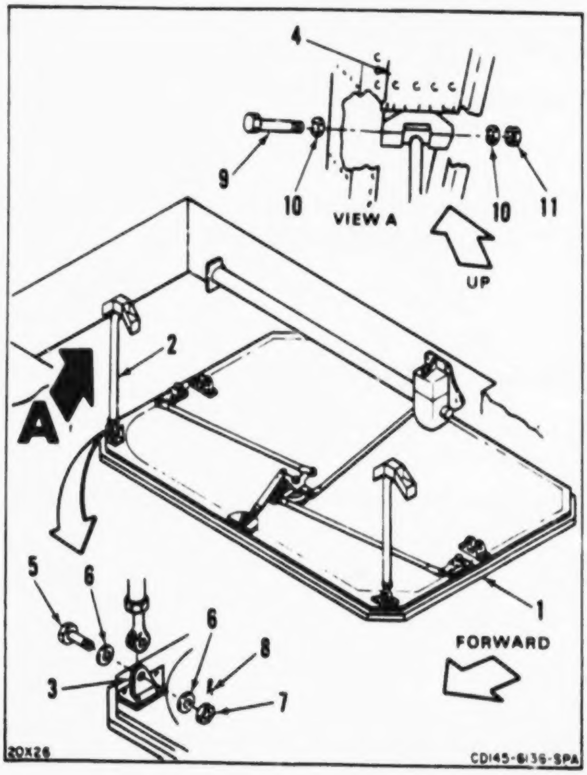
References:
TM 55-1520-240-23P

INSTALL RIGID LINK

NOTE

Procedure is same to install both rigid links. Installation of rigid link on left side is shown here.

1. Support door (1) and **position link (2)** on bracket (3) and stucture (4).
2. **Install bolt (5),** two washers (6), nut (7), and cotter pin (8).
3. **Install bolt (9),** two washers (10), and nut (11).


4
9
10
VIEW A
10
11
UP
2
A
5
6
6
8
3
7
1
FORWARD
20X26
CD145-6136-SPA

GO TO NEXT PAGE

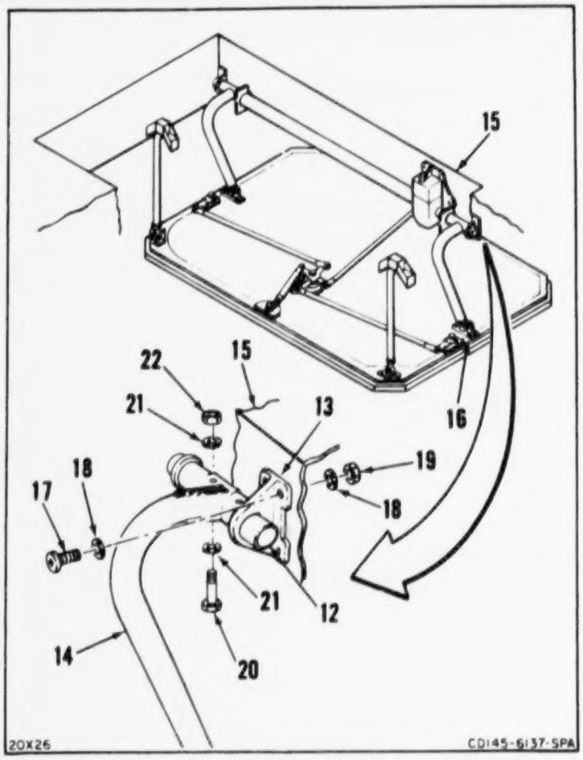
2-202 INSTALL RESCUE HATCH LOWER DOOR WELDED OR RIGID LINKS (Continued) 2-202

INSTALL WELDED LINK

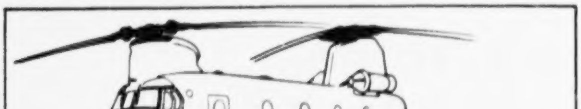
NOTE

Procedure is same to install both welded links. Installation of welded link on left side is shown here.

4. **Position shaft (12) and bracket (13) on welded link (14).**
5. **Position link (14)** with bracket (13) on structure (15) and door bracket (16).
6. **Install four screws (17)** eight washers (18), and four nuts (19) on bracket (13).
7. **Install two bolts (20),** four washers (21), and two nuts (22) on link (14).


15
22
15
21
13
16
18
19
17
18
21
12
14
20
20X26
CD145-6137-SPA

8. **Install bolt (23),** two washers (24), nut (25), and cotter pin (26) on link (14) and bracket (16).
9. **Position access panel (27)** aft of door (1), and **install 14 screws (28).**


FORWARD
14
27
1
VIEW A
28
23
24
14
24
26
16
25
1
FORWARD
20X26
CD145-6138-SPA

FOLLOW-ON MAINTENANCE:

Install rescue hatch lower door actuating gearbox (Task 2-200).

Raise rescue hatch lower door (Task 2-203).

END OF TASK

2-203 INSTALL RESCUE HATCH LOWER DOOR 2-203

INITIAL SETUP

Applicable Configurations:
All

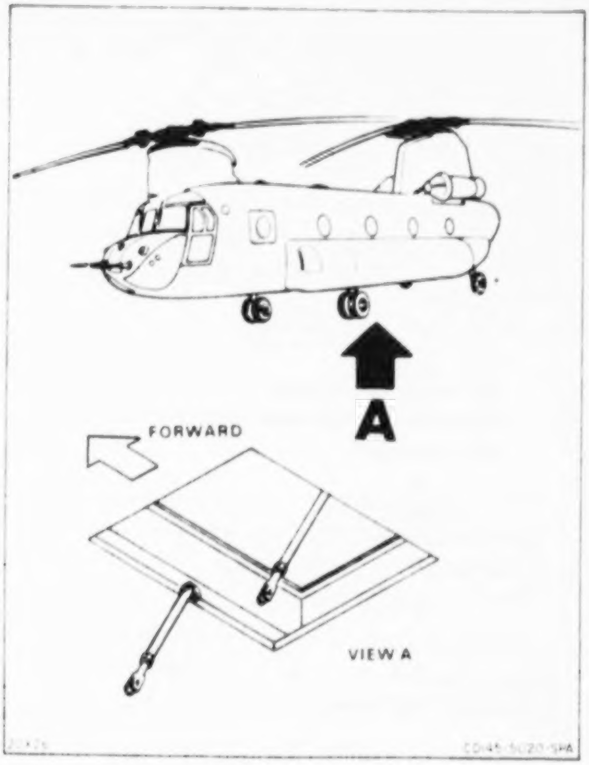
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

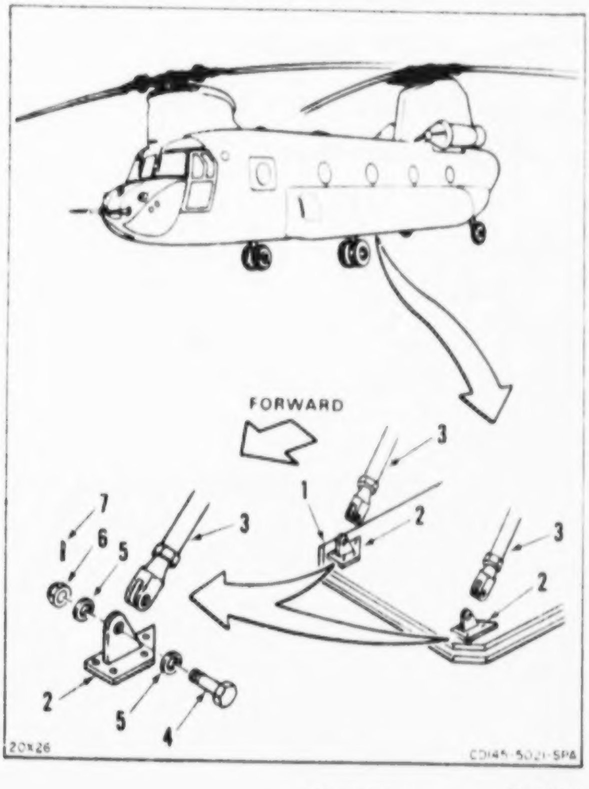
Parts:
Cotter Pins

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM 55-1520-240-23P


A
FORWARD
VIEW A
20X25
CD145-5020-SPA

1. From outside helicopter, and with aid of helper, **position and support door (1)** with bracket (2) forward.
2. **Position link (3)** on bracket (2).
3. **Install four bolts (4), eight washers (5), four nuts (6), and cotter pins (7).**


FORWARD
7
6
5
3
1
3
2
3
2
2
5
4
20X26
CD145-5021-SPA

GO TO NEXT PAGE

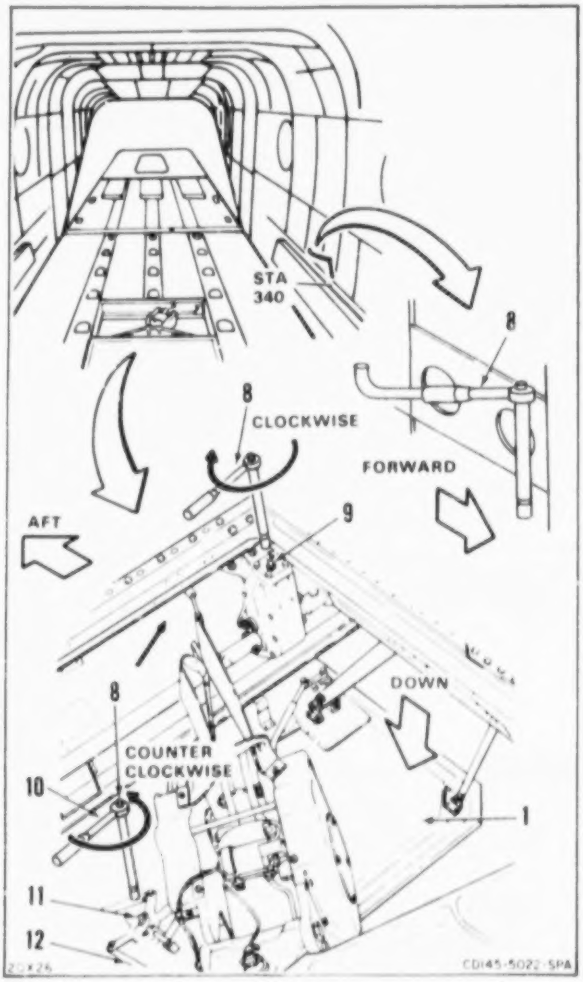
CAUTION

Make sure latches clear structure when raising door. Otherwise damage to door may result.

CAUTION

Do not use excessive force to raise door; damage to gearbox can result.

4. From inside helicopter, **attach handle (8) to gearbox shaft (9). Turn handle clockwise until door (1) is full up** and flush with structure (10). Remove handle.
5. **Attach handle (8) to actuator shaft (11). Turn handle counterclockwise until latches (12) lock.** Remove handle.
6. Stow crank handle (8) at station 340, left side.


STA 340
8
8
CLOCKWISE
FORWARD
AFT
9
DOWN
8
COUNTER CLOCKWISE
10
1
11
12
CD145-5022-SPA

FOLLOW-ON MAINTENANCE:

Close rescue hatch upper door (Task 2-2).

END OF TASK

2-203.1 REMOVE BUSHINGS FROM FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE 2-203.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Bushing Removal Tool (Appx E-40)

Materials:

None

Personnel Required:

Medium Helicopter Repairer

References:

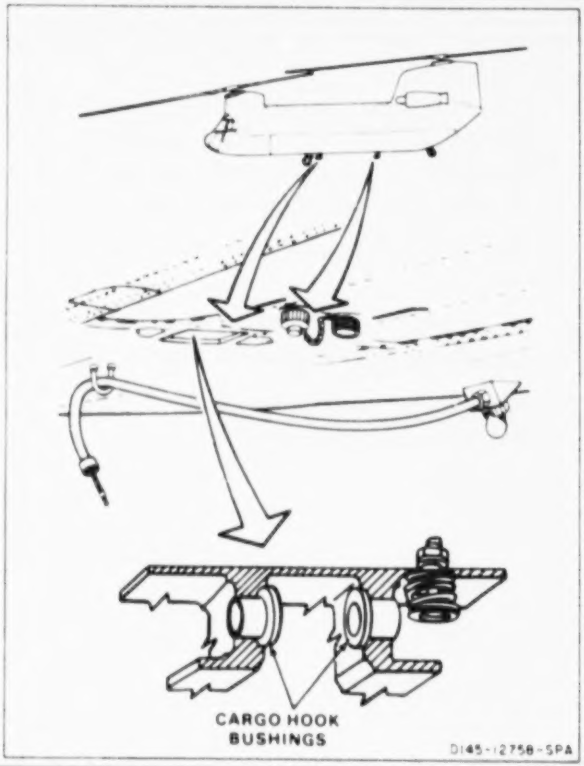
Appendix E

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

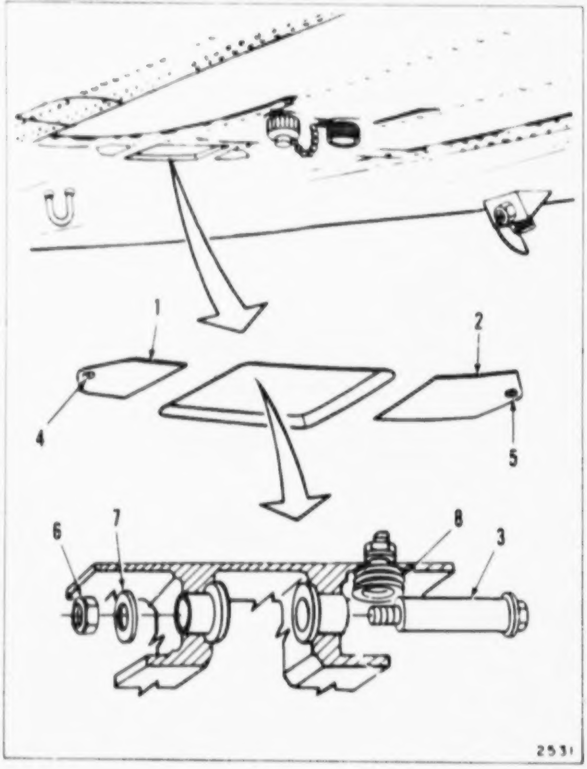
Cargo Hook Removed (Task 16-23)



NOTE

Remove forward or aft bushing in same manner. Aft bushing removal shown here.

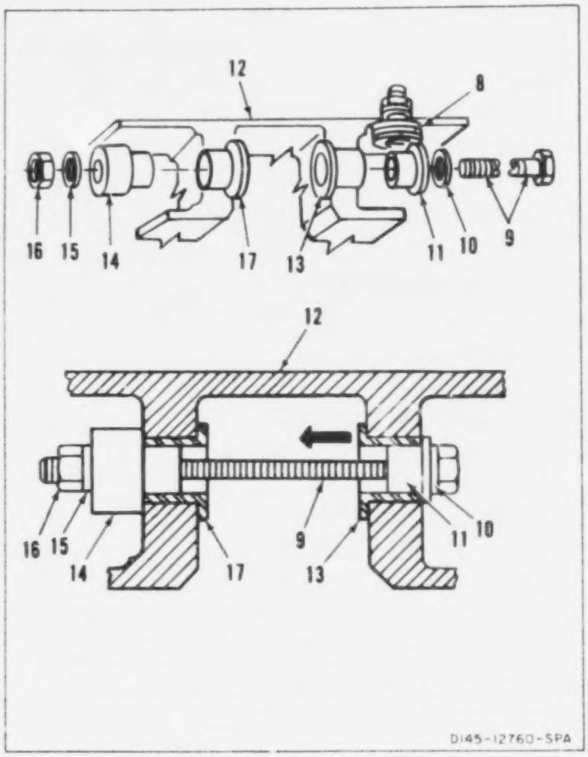
1. **If installed, remove access plates (1 and 2) and bolt (3)** as follows:
   a. Remove screws (4 and 5). Remove access plates (1 and 2).
   b. Remove nut (6) and washer (7). Press safety stop (8) and remove bolt (3).



GO TO NEXT PAGE

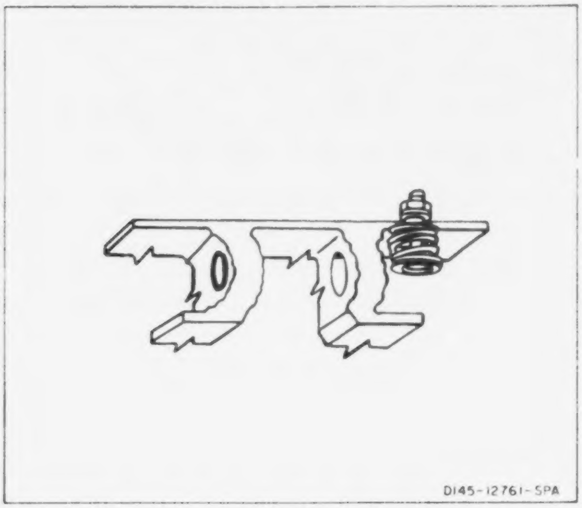
2-203.1 REMOVE BUSHINGS FROM FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE (Continued)

2. Install removal tool bolt (9), with washer (10) and sleeve plate (11) through beam (12) from side with bushing (13) to be removed. Push up on safety stop (8) for clearance.
3. Install spacer (14), washer (15), and nut (16) on bolt (9).
4. Hold bolt (9) from turning. Turn nut (16) to **press bushing (13) out of beam (12).**
5. Install replacement bushing (13) before removing second bushing (17).


12
8
16
15
14
17
13
11
10
9
12
16
15
14
17
9
13
11
10
D145-12760-SPA

FOLLOW-ON MAINTENANCE:

None


D145-12761-SPA

END OF TASK

2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE 2-203.2

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Took Kit, NSN 5180-00-323-4692
Kevlar Gloves (E187)
Bushing Removal Tool (E-40)
Torque Wrench, 30 to 150 Inch-Pounds
Container, 2-Quart

Materials:

Dry Cleaning Solvent (E162)
Carbon Dioxide (Dry Ice) (E92)
Methanol (E243)
Cloths (E120)
Gloves (E186)

Personnel Required:

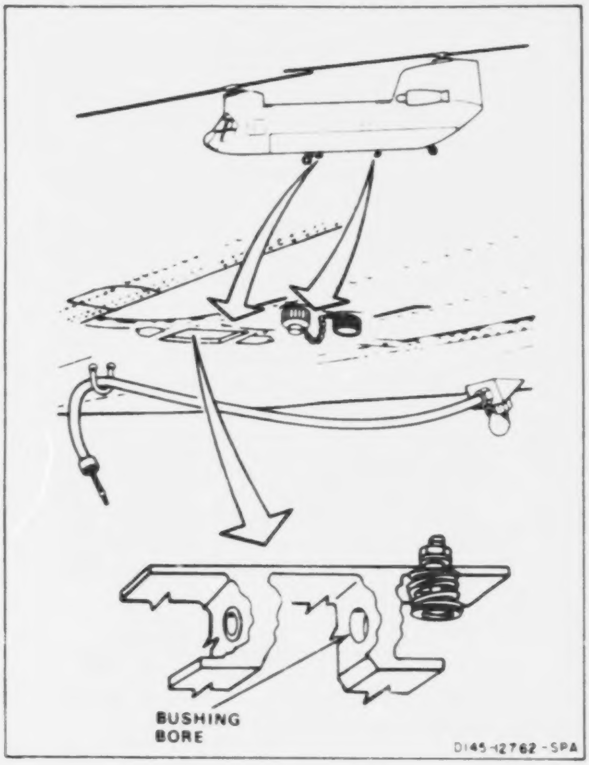
Medium Helicopter Repairer
Inspector

References:

TM 55-1520-240-23P

NOTE

Install forward or aft bushing in same manner. Aft bushing shown here.

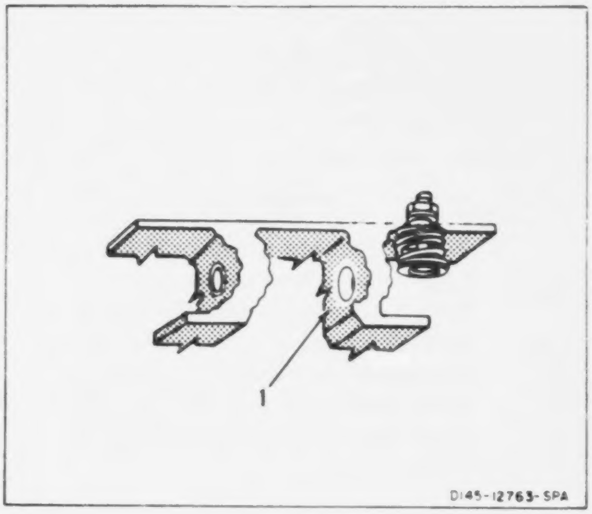


PREPARE BEAM AND BUSHING

WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. **Clean** bushing **mating surfaces** of beam (1). Use solvent (E162) and cloths (E120). Wear gloves (E186).



GO TO NEXT PAGE

2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE (Continued) 2-203.2

WARNING

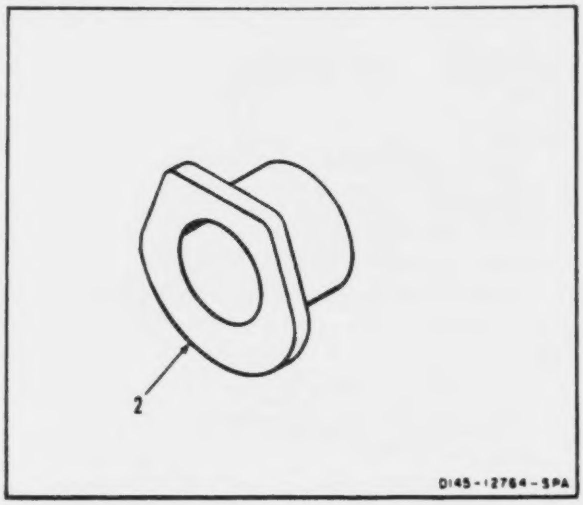
Carbon dioxice (dry ice) (E92) causes severe burns (frost bite) and gives off toxic fumes. Use only iiin well-ventilated area. Do not get in eyes, on skin, or clothing. In case of contact, immediately flush with water. Get medical attention for eyes.

WARNING

Methanol (E243) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes.. Get medical attention for eyes.

WARNING

Dry ice (E92) in methanol (E243) has a temperature of −120°F (−84°C). Observe all safety measures when working with dry ice (E92) and methanol (E243), and when handling chilled parts. Avoid breathing carbon dioxide vapor.

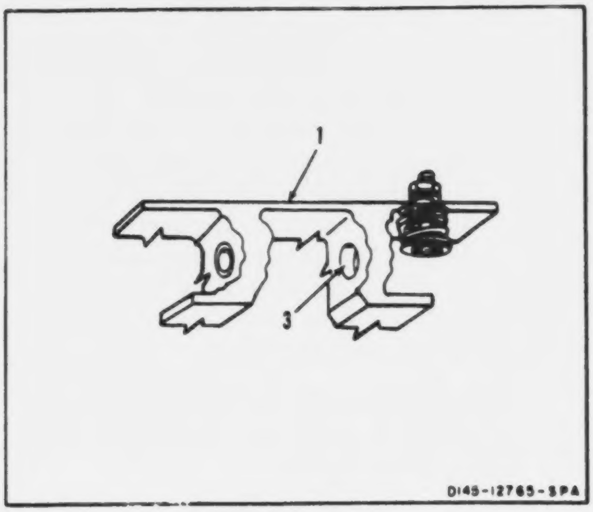


2. **Place bushing (2) in carbon dioxide (dry ice) (E92) and methanol (E243).** Wear gloves (E187). Wear goggles to protect eyes. Allow bushing to cool.

WARNING

Zinc chromate primer (E291) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. **Coat** bushing **bore (3)** of beam (1) **with zinc chromate primer (E291).** Wear gloves (E186).



GO TO NEXT PAGE

2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE (Continued) 2-203.2

INSTALL BUSHING

WARNING

Wear gloves (E187) when handling chilled bushing.

NOTE

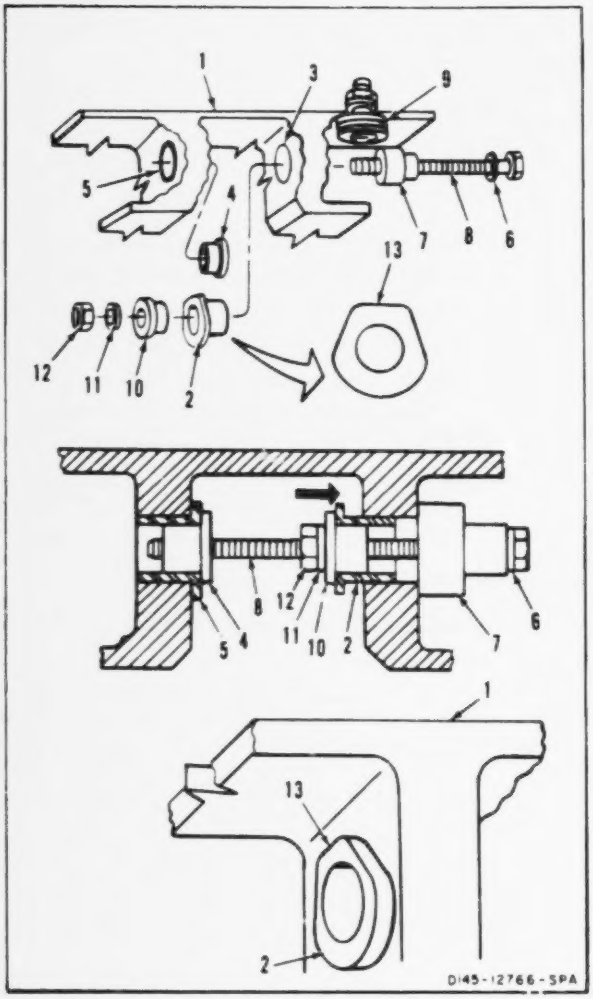
Work quickly with chilled bushing. Bushing must be installed before it warms.

4. Remove bushing (2) from dry ice. Wear goggles to protect eyes.
5. While primer is wet, **press bushing (2) into beam (1)** as follows:
   a. Install one sleeve plate (4) in installed bushing (5). Install washer (6) and spacer (7) on bolt (8), small end of spacer toward bolt head.
   b. Press safety stop (9) and install bolt (8) through bore (3). Install new bushing (2) and second sleeve plate (10) over bolt. Install washer (11) and nut (12) on bolt.
   c. Insert end of bolt (8) in sleeve plate (4).
   d. Align bushing (2) so that center flat (13) faces up. Flat shall be parallel to top of beam (1).
   e. Hold bolt (8) from turning. Turn nut (12) to press bushing (2) into beam (1) until shoulder touches beam (1).

NOTE

Make sure center flat of bushing remains parallel to top of beam.

6. Remove nut (12), washer (11), sleeve plates (10 and 4), and bolt (8).



GO TO NEXT PAGE

2-203.2 INSTALL BUSHINGS IN FORWARD OR AFT CARGO HOOK MOUNT STRUCTURE (Continued) 2-203.2

7. **If required, install bolt (13) and access plates (14 and 15)** as follows:

NOTE

Install bolt so that head is under safety stop.

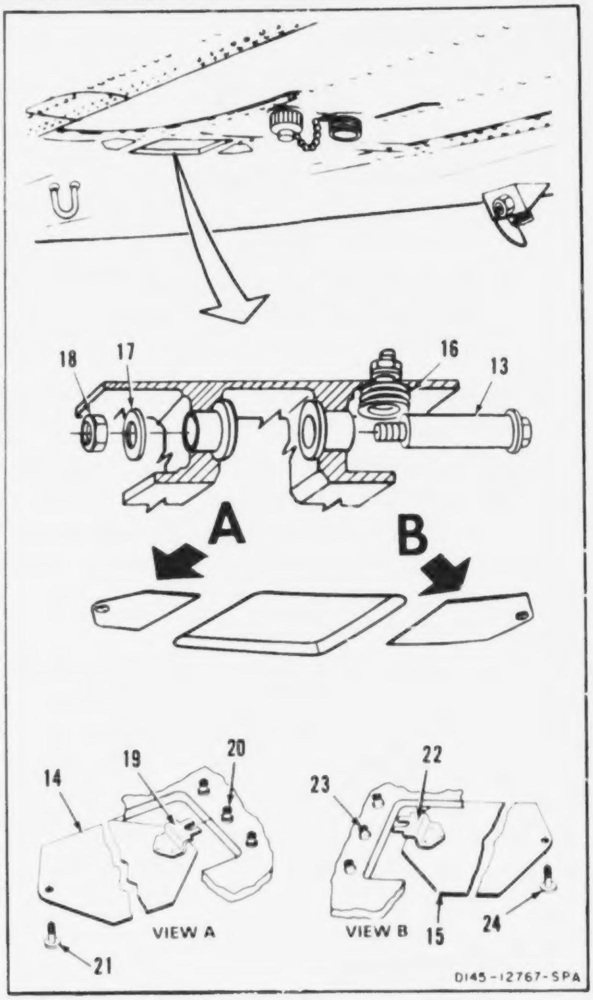
a. Press safety stop (16) and install bolt (13), washer (17), and nut (18). Torque nut to 120 inch-pounds..

b. Position forward access plate (14) over forward hole in fuselage with clip slot (19) around rivet tail (20). Install screw (21).

c. Position aft access plate (15) over aft hole in fuselage with clip slot (22) around rivet tail (23). Install screw (24).

FOLLOW-ON MAINTENANCE:

Install Cargo Hook (Task 16-31).



END OF TASK

2-204 REMOVE CABIN FLOOR PANEL 2-204

INITIAL SETUP

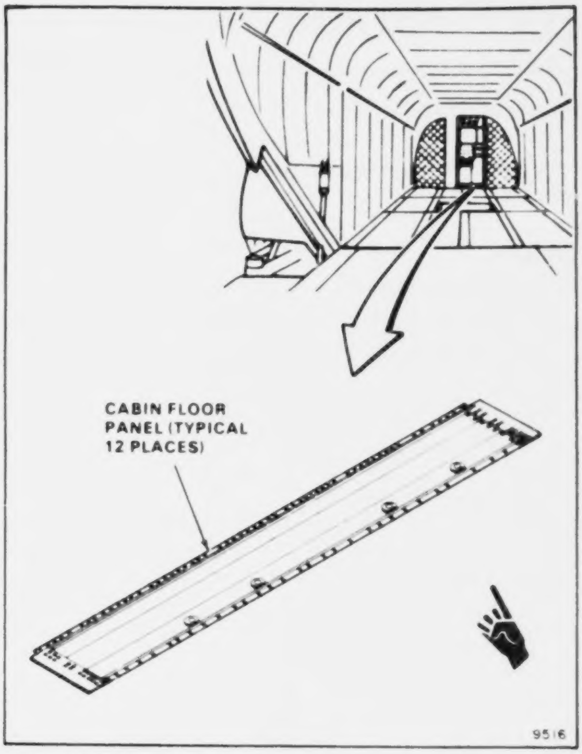
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

Procedure is similar for all 12 floor panels except for removal of cable guard and splice plates, and release of up-stops.

- Cable guard is at sta 120 above two inboard floor panels.
- Splice plates are at sta 240 and, at outboard panels only, at sta 360.
- Up-stops are at outer edges of outer beams.

1 Where applicable, remove three screws (1) and washers (2) from cable guard (3). **Remove cable guard.**

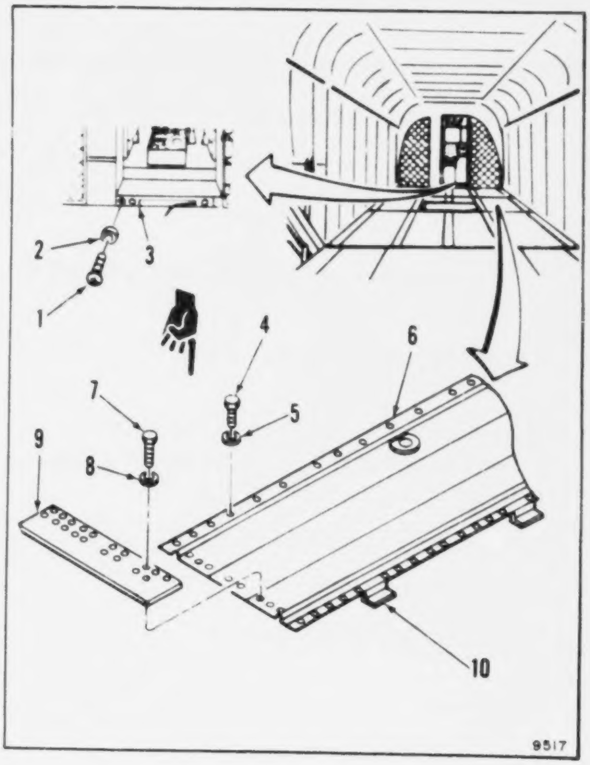
2 Remove 70 bolts (4) and washers (5) from panel (6).

3 Where applicable, remove 24 bolts (7) and washers (8) from splice plate (9). **Remove splice plate.**

4 Where applicable, lift inboard edge of panel (6) up to **release up-stops (10)** from underside of outboard floor beams.

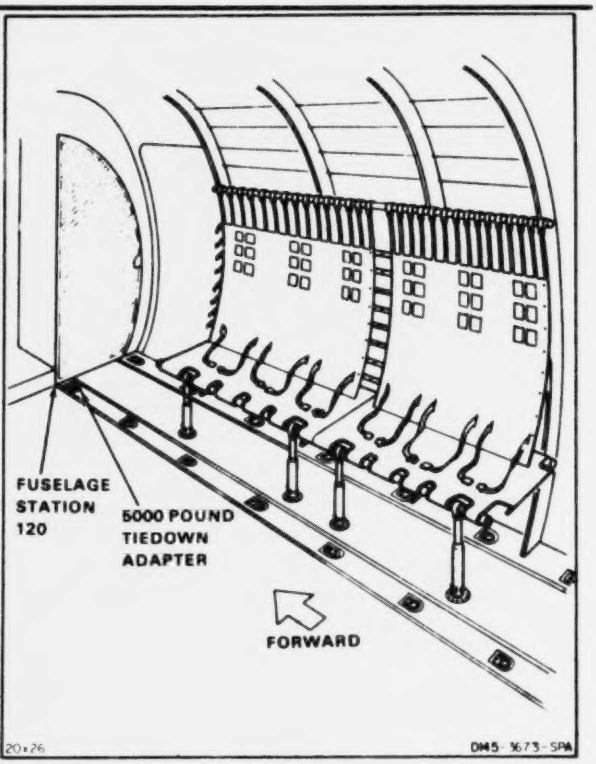
5 **Remove panel (6).**

FOLLOW-ON MAINTENANCE:
None



END OF TASK

2-205 REMOVE CABIN FLOOR 5000 POUND TIEDOWN ADAPTER 2-205


FUSELAGE STATION 120
5000 POUND TIEDOWN ADAPTER
FORWARD
20x26
DI45-3673-SPA

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Air Compressor (MC-1A)

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer

Equipment Conditions:
Battery Disconnected (Task 1-39)
Electrical Power Off

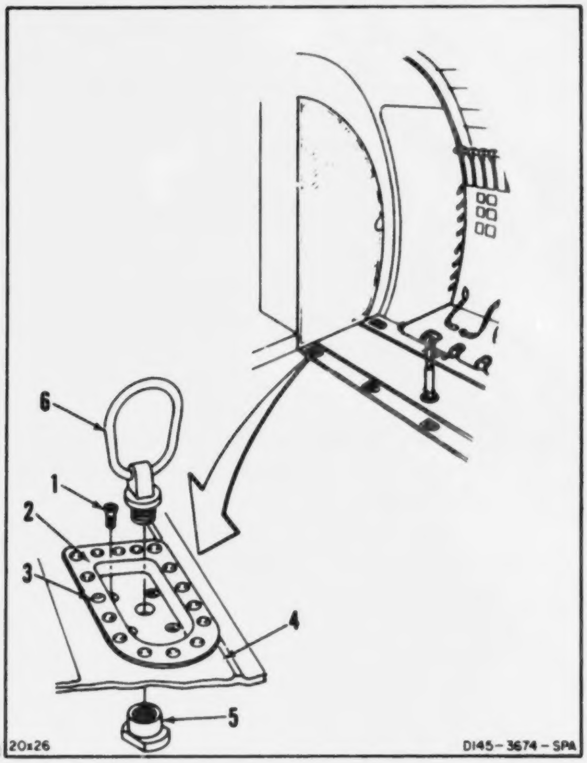
NOTE

Procedure is same for all 5000-pound tiedown adapters. Adapter at station 120 is shown here.

1. **Remove four screws (1)** from receptacle (2).
2. **Remove sealant** from edges of receptacle (2).
3. **Drill out 16 rivets (3)** and **remove receptacle (2)** from beam (4). Use goggles to protect eyes.
4. Remove bushing (5) from adapter (6).
5. **Remove adapter (6).**

FOLLOW-ON MAINTENANCE:

None


6
1
2
3
4
5
20x26
DI45-3674-SPA

END OF TASK

2-206 INSTALL CABIN FLOOR 5000 POUND TIEDOWN ADAPTER 2-206

INITIAL SETUP

Applicable Configurations:
All

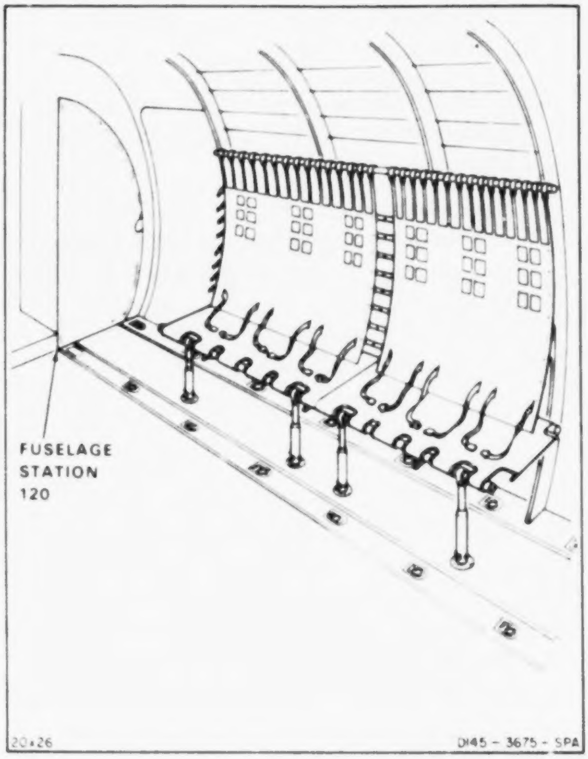
Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Air Compressor (MC-1A)

Materials:
Brush (E85)
Gloves (E186)
Sealant (E327)
Zinc Chromate Primer (E291)

Personnel Required:
68G20 Aircraft Structural Repairer

References:
TM 55-1520-240-23P

General Safety Instructions:



WARNING

Sealant (E327) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

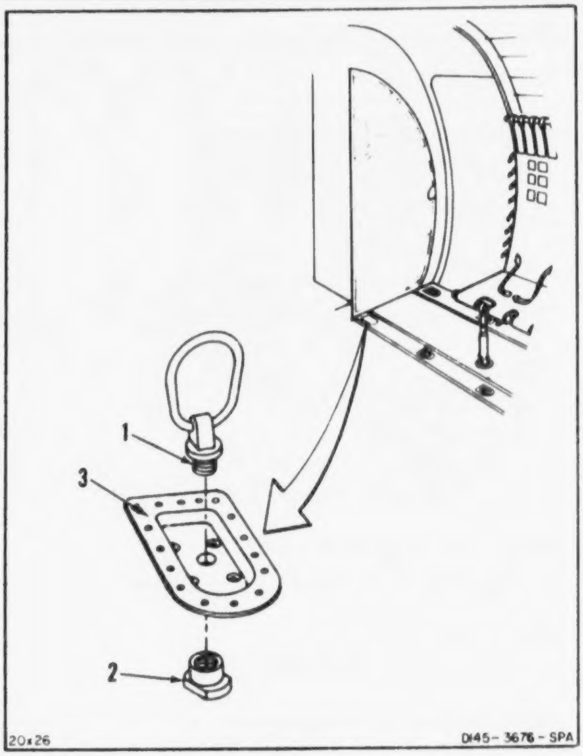
GO TO NEXT PAGE

2-206 INSTALL CABIN FLOOR 5000 POUND TIEDOWN ADAPTER (Continued) 2-206

NOTE

Procedure is same for all 5000-pound tiedown adapters. Adapter at station 120 is shown here.

1. **Coat thread of adapter (1)** and bushing (2) **with sealant (E327)** using brush (E85). Wear gloves (E186).
2. **Position bushing (2)** under receptacle (3) and **install adapter (1)** in bushing. Make sure adapter pivots fore and aft, and swivels freely.

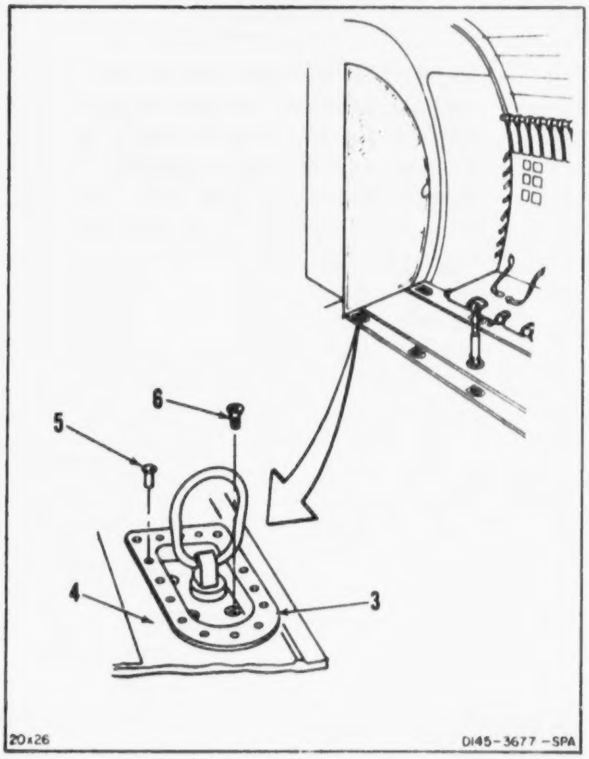


3. **Position receptacle (3)** on beam (4). **Install 16 rivets (5)** in receptacle and beam.
4. Apply sealant (E327) around edges of receptacle (3).

WARNING

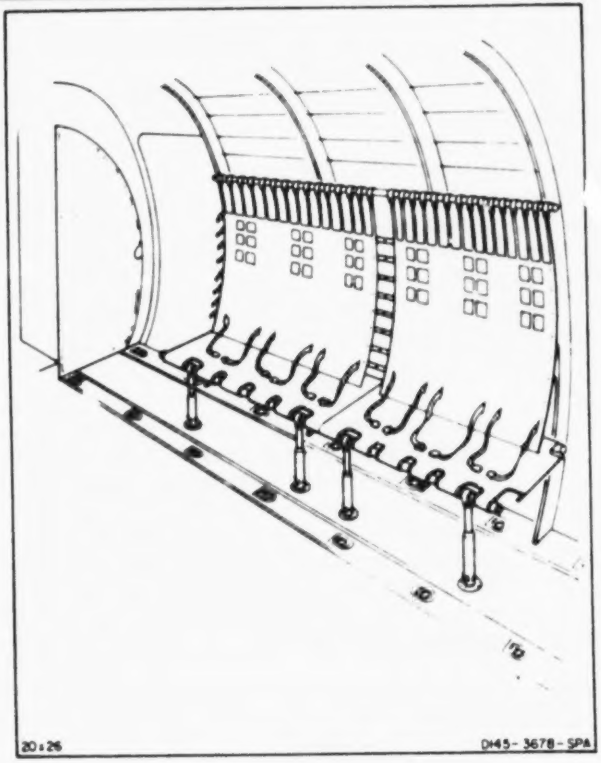
Primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

5. Coat four screws (6) with primer (E291). **Install four screws** in receptacle (3) and beam (4). Wear gloves (E186).



GO TO NEXT PAGE

2-206 INSTALL CABIN FLOOR 5000 POUND TIEDOWN ADAPTER (Continued) 2-206


20:26
DH45-3678-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-207 INSTALL CABIN FLOOR PANEL 2-207

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Gloves (E186)
Zinc Chromate Primer (E291)
Sealant (E331)

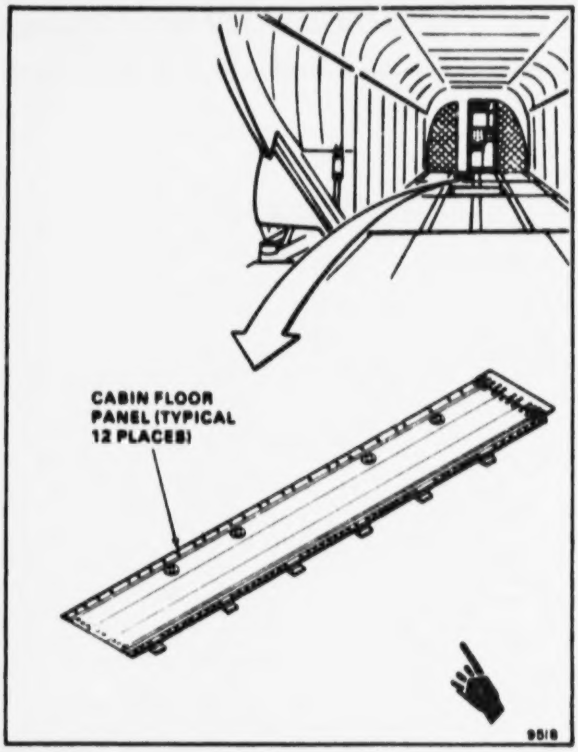
Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

Primer (E291) and sealant (E331) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

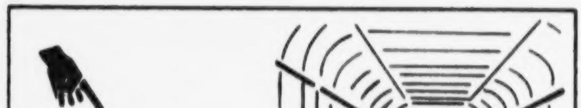


NOTE

Installation is similar for all 12 floor panels except for installation of cable guard and splice plates and engagement at up-stops.

- Cable guard is at sta 120 above two inboard floor panels.
- Splice plates are at sta 240 and, at outboard panels only, at sta 360.
- Up-stops are at outer edges of outer beams.

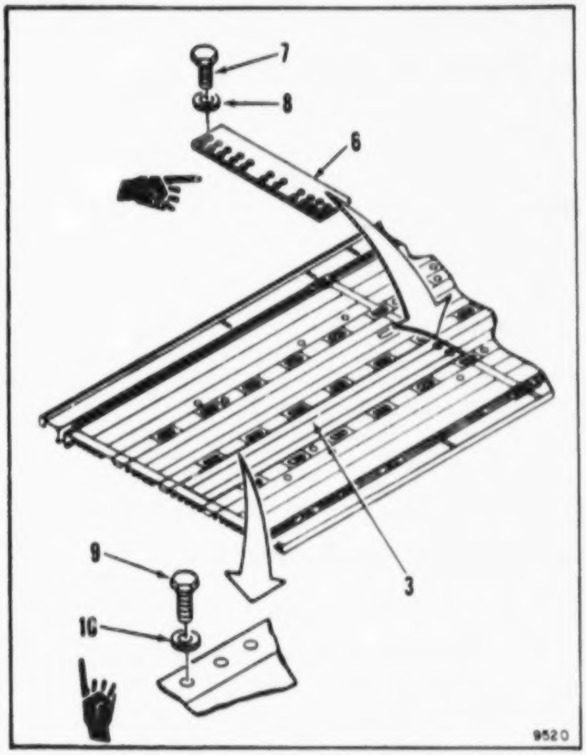
1. Check seal faying surface (1) on floor structure (2). If cut or cracked, replace seal.
2. Where applicable, lift inboard edge of panel (3) up and slide it outboard to engage up-stops (4) in underside of outboard floor beams.
3. Spray two screws (5) with primer (E291). Install screws wet with primer in panel (3). Wear gloves (E186).



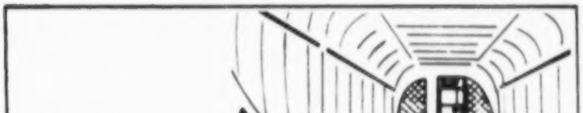
GO TO NEXT PAGE

2-207 INSTALL CABIN FLOOR PANEL (Continued) 2-207

4. **Position splice plate (6)** on aft end of panel (3).
5. Spray 24 bolts (7) with primer (E291). **Install 24 bolts,** wet with primer and washers (8) in splice plate (6). Wear gloves (E186).
6. Spray 70 bolts (9) with primer (E291). **Install 70 bolts,** wet with primer, and washers (10) in panel (3). Wear gloves (E186).
7. **Seal edges of panel (3).** Use sealant (E331).



8. **Position cable guard (11)** on structure (12).
9. **Install three screws (13)** and washers (14) on cable guard (11).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-208 REMOVE CABIN ACOUSTIC BLANKETS 2-208

INITIAL SETUP

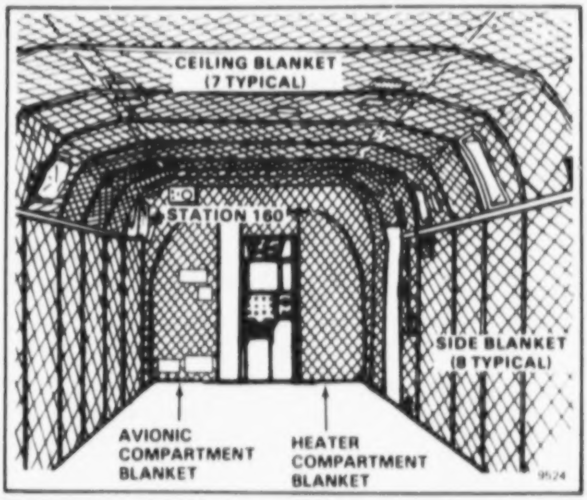
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Troop Seat Removed (Task 2-230)
Night Vision Goggles (NVG) Blackout Curtain Removed (Task 2-108.1)

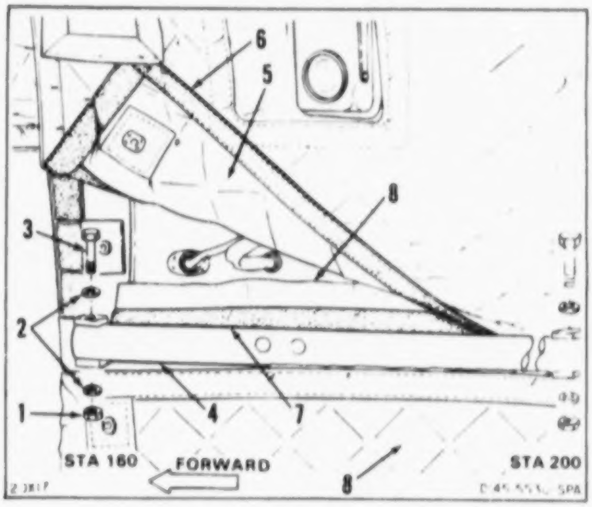

CEILING BLANKET (7 TYPICAL)
STATION 160
SIDE BLANKET (8 TYPICAL)
AVIONIC COMPARTMENT BLANKET
HEATER COMPARTMENT BLANKET
9524

REMOVE CEILING BLANKETS

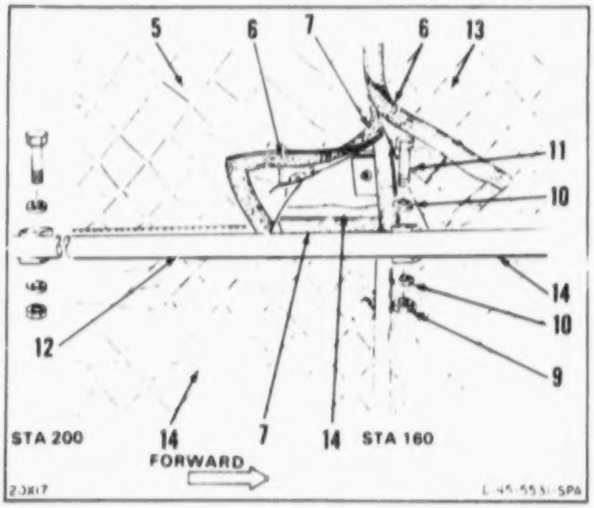
NOTE

Procedure is same to remove all cabin ceiling blankets. Removal of blanket between stations 160 and 200 is shown here.

1. **Remove** two nuts (1), four washers (2), and two **bolts (3)** from upper troop seat rail (4) on right side.
2. **Pull rail (4) slightly away from ceiling blanket (5). At same time, pull back edges of blanket. Separate hook tape (6) on blanket from pile tape (7) on right side blanket (8).**


6
5
8
3
2
1
4
7
STA 160
FORWARD
8
STA 200

3. **Remove** two nuts (9), four washers (10), and **two bolts (11)** from upper troop seat rail (12) on left side.
4. **Pull rail (12) slightly away from ceiling blanket (5). At same time, pull back aft edge of blanket (13).** Separate hook tape (6) on blanket (13) from pile tape (7) on blanket (5). Separate entire aft edge of blanket (13).
5. **Pull rail (12) slightly away from blanket (5). At same time, pull back edge of blanket.** Separate hook tape (6) on blanket (5) from pile tape (7) on left side blanket (14).


5
6
7
6
13
11
10
14
10
9
12
STA 200
14
7
14
STA 160
FORWARD

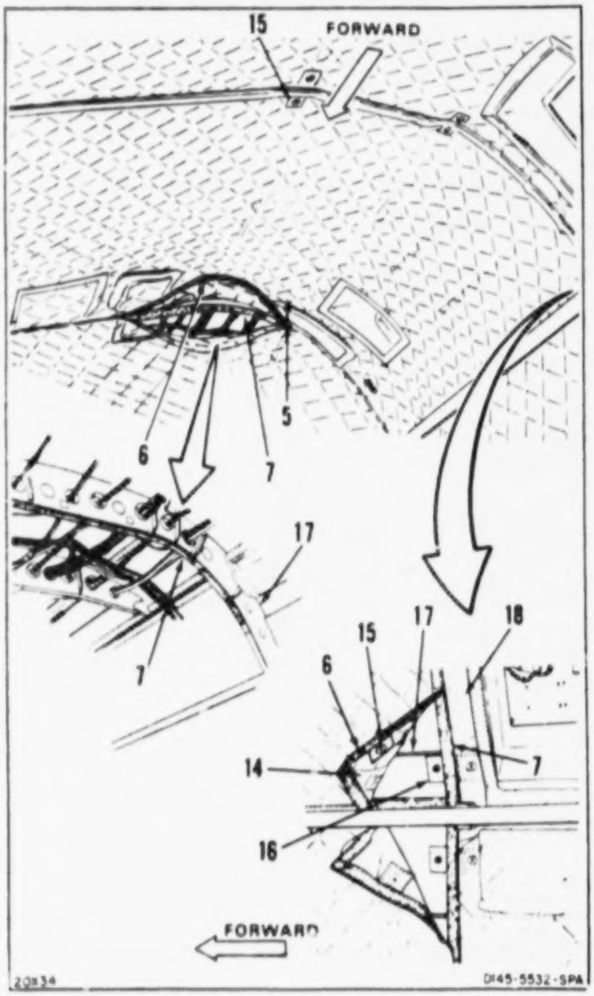
GO TO NEXT PAGE

2-208 REMOVE CABIN ACOUSTIC BLANKETS (Continued) 2-208

NOTE

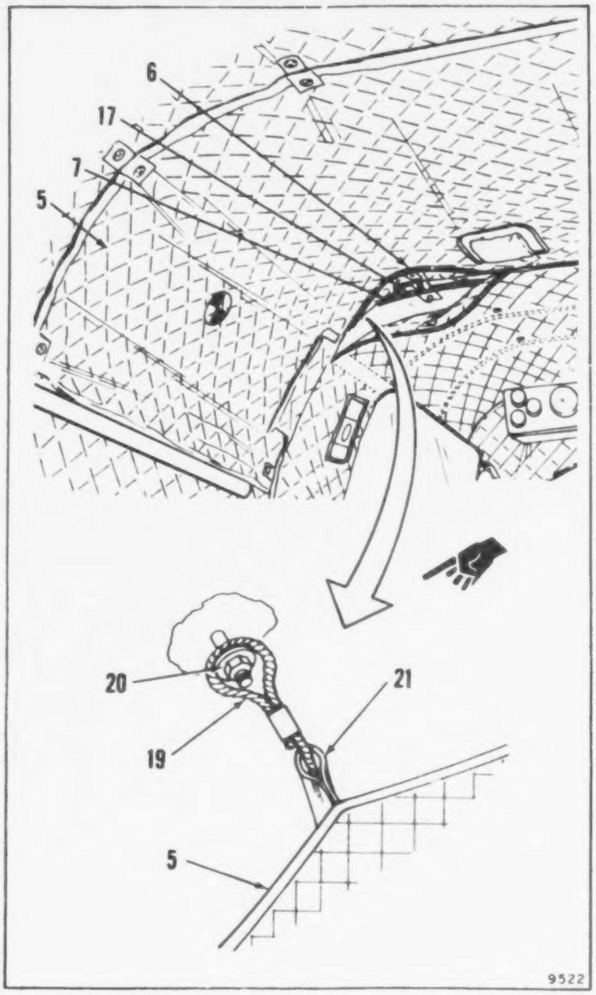
Number of socket fasteners varies for each blanket.

6. **Pull all socket fasteners (15)** on blanket (5) **from studs (16)** on structure (17).
7. **Pull back edge of blanket (5) at aft end.** Separate hook tape (6) on blanket from pile tape (7) on blanket (18).
8. **Pull back edge of blanket (5) at forward right end.** Separate hook tape (6) on blanket from pile tape (7) on structure (17).


15
FORWARD
5
6
7
17
7
15
17
18
6
14
7
16
FORWARD
20334
D145-5532-5PA

2-208 REMOVE CABIN ACOUSTIC BLANKETS (Continued) 2-208

9. **Pull back edge of blanket (5) at forward left end.** Separate hook tape (6) on blanket from pile tape (7) on structure (17).
10. **Repeat steps 8 and 9 at aft edge of blanket (5).**
11. Remove rope (19) from structure (20) at four places.
12. Remove blanket (5). Remove rope (19) from blanket loops (21).

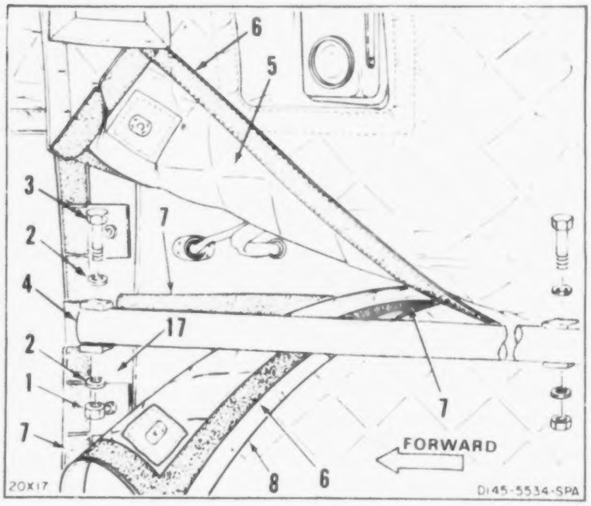


REMOVE SIDE BLANKETS

NOTE

Procedure is same to remove all cabin side blankets. Removal of blanket between stations 160 and 200 on right side is shown here.

13. **Remove two nuts (1), four washers (2), and two bolts (3)** from upper troop seat rail (4) on right side.
14. **Pull rail (4) slightly away from blanket (5). At same time, pull back edge of blanket.** Separate hook tape (6) on blanket from pile tape (7) on right side blanket (8).
15. **Pull rail (4) slightly away from blanket (8). At same time, pull back edge of blanket.** Separate hook tape (6) on blanket (8) from pile tape (7) on structure (17).



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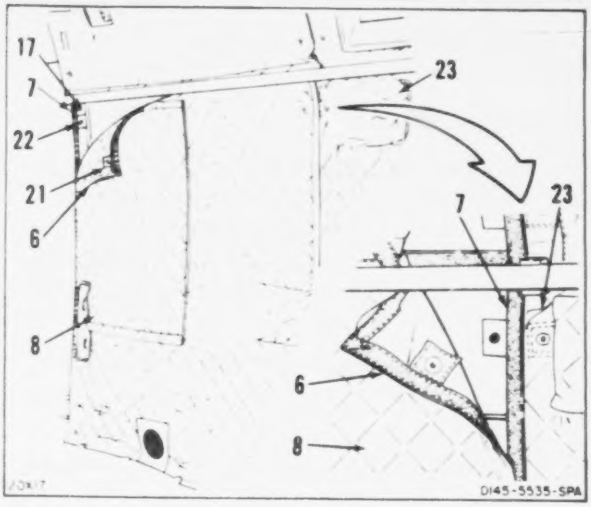
2-208 REMOVE CABIN ACOUSTIC BLANKETS (Continued) 2-208

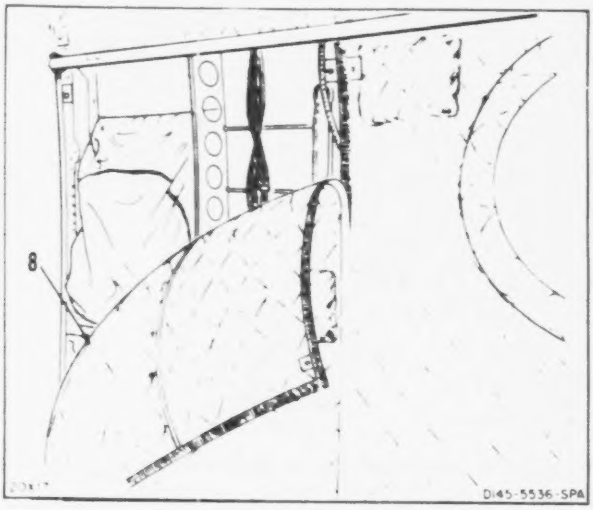
16 **Pull four socket fasteners (21)** on blanket (8) **from studs (22)** on structure (17).

17 **Pull back edges of blanket (8).** Separate hook tape (6) on blanket from pile tape (7) on structure (17).

18 Pull back on blanket (8). Separate hook tape (6) on blanket from pile tape (7) on blanket (23).


17
7
22
21
6
8
23
7
23
6
8
D145-5535-SPA

19 **Remove blanket (8).**


8
D145-5536-SPA

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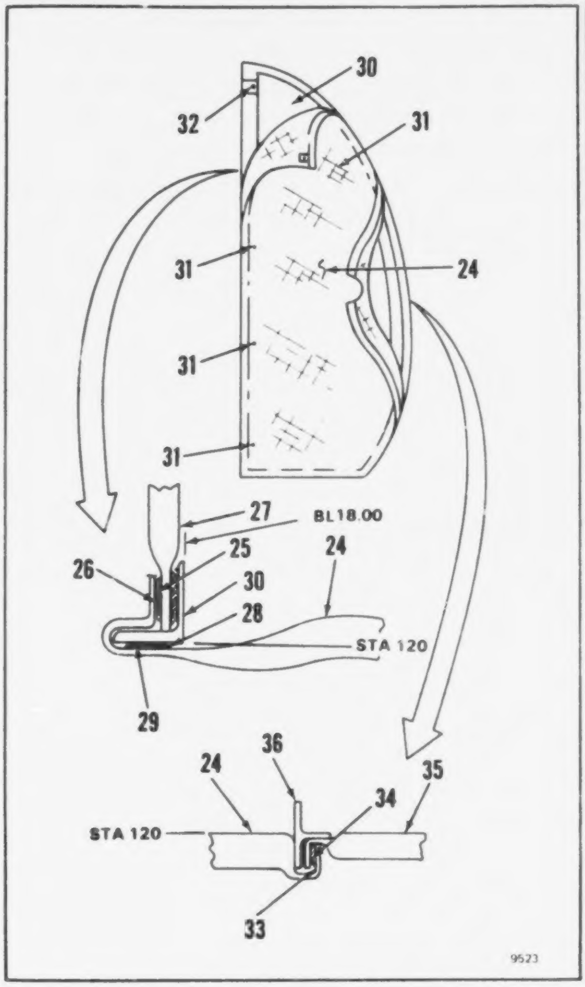
2-208 REMOVE CABIN ACOUSTIC BLANKETS (Continued) 2-208

REMOVE HEATER AND AVIONIC COMPARTMENT BLANKETS

Heater Blanket

20. **Pull back left edge of blanket (24).** Separate hook tape (25) on blanket from pile tape (26) on passageway blanket (27). Continue removing blanket and separate hook tape (28) from pile tape (29) on structure (30).
21. **Pull four socket fasteners (31)** on blanket (24) from studs (32) on structure (30).
22. **Pull back right edge of blanket (24).** Separate hook tape (33) on blanket from pile tape (34) on blanket (35).

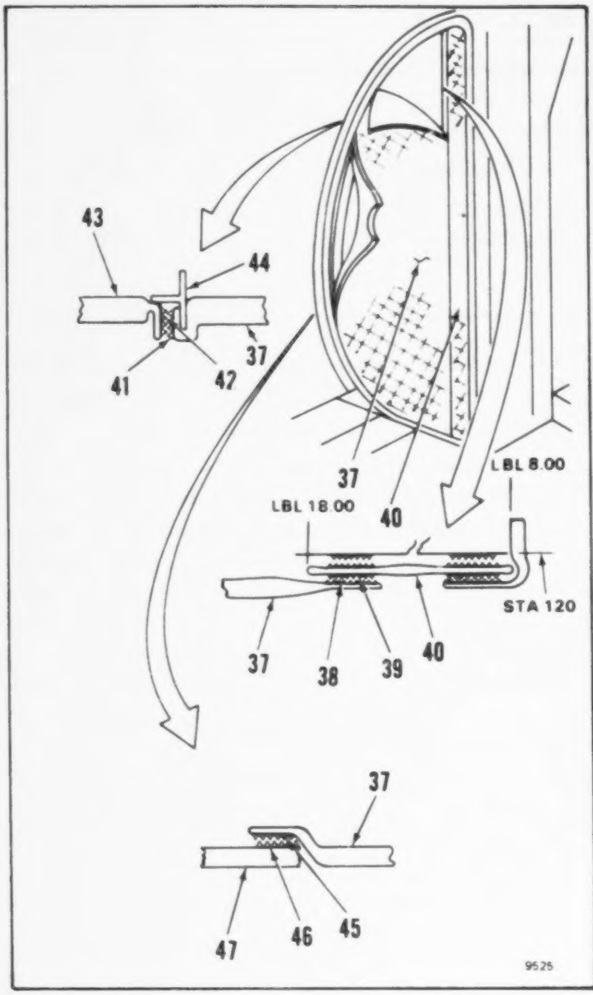

30
32
31
31
24
31
31
27
BL18.00
25
24
26
30
28
STA 120
29
36
24
35
34
STA 120
33
9523

GO TO NEXT PAGE

2-208 REMOVE CABIN ACOUSTIC BLANKETS (Continued) 2-208

Avionic Blanket

23. **Pull back right edge of blanket (37).** Separate hook tape (38) on blanket from pile tape (39) on blanket (40).
24. **Pull back upper left edge of blanket (37).** Separate hook tape (41) on blanket from pile tape (42) on blanket (43).
25. **Pull back lower left edge of blanket (37).** Separate hook tape (45) on blanket from pile tape (46) on blanket (47).


43
44
37
41
42
37
40
LBL 18.00
LBL 8.00
STA 120
37
38
39
40
37
47
46
45
9525

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-209 REPAIR ACOUSTIC BLANKET 2-209

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
43M10 Fabric Repair Specialist

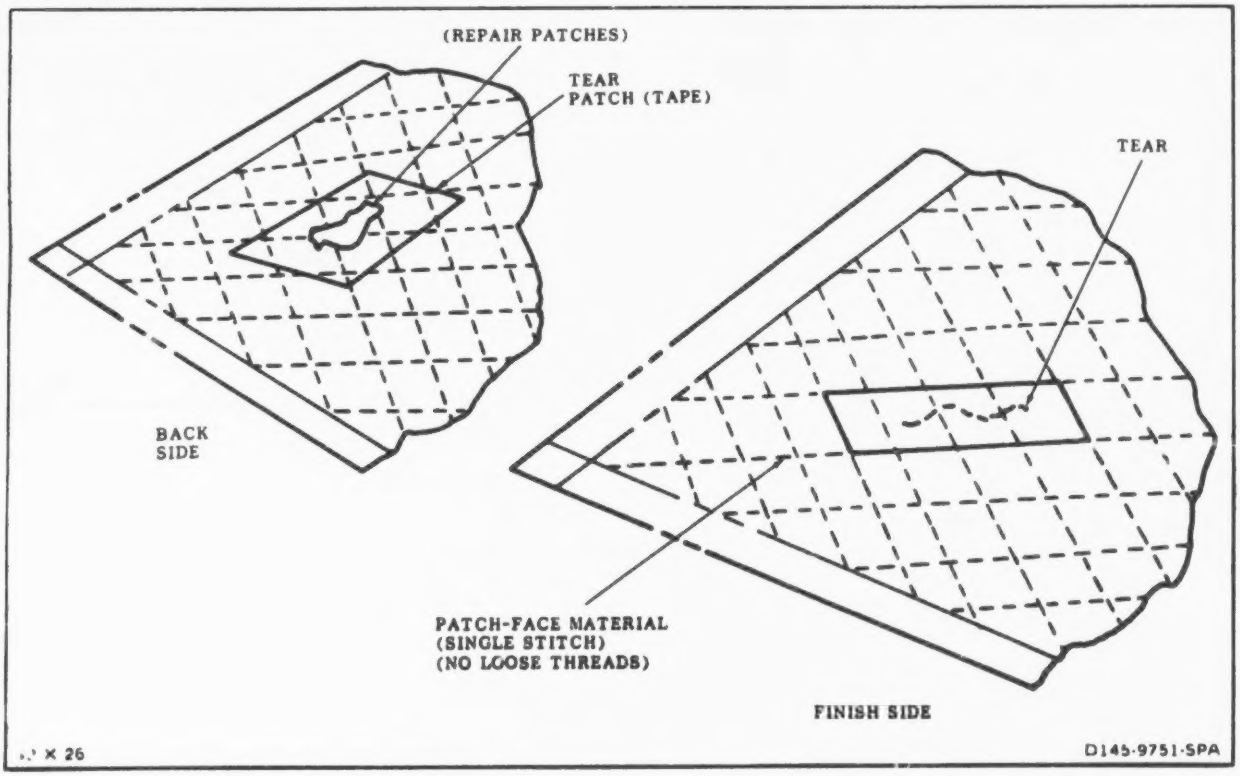
References:
Task 2-338

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Repair of acoustic blanket is limited to holes or tears that can be mended or patched without impairing the acoustic quality.
2. A repair to the visible side of the blanket shall blend in with the finished product decor. A patch of single thickness of like material shall be sewn to cover the repair area.
3. Repair to the non-visible side or back side of a blanket may be done with tape. The tape must be completely sealed down to the backing in a neat fashion.
4. If required, repair the hook and pile tape installation (Task 2-338).


(REPAIR PATCHES)
TEAR
PATCH (TAPE)
TEAR
BACK SIDE
PATCH-FACE MATERIAL
(SINGLE STITCH)
(NO LOOSE THREADS)
FINISH SIDE
.' × 26
D145-9751-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-210 INSTALL CABIN ACOUSTIC BLANKETS 2-210

INITIAL SETUP

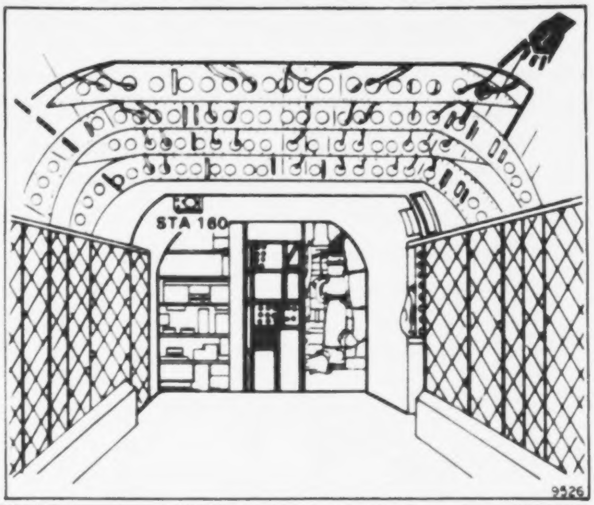
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM 55-1520-240-23P



NOTE

Start at station 482 and work forward if installing all blankets in cabin.

INSTALL CEILING BLANKETS

NOTE

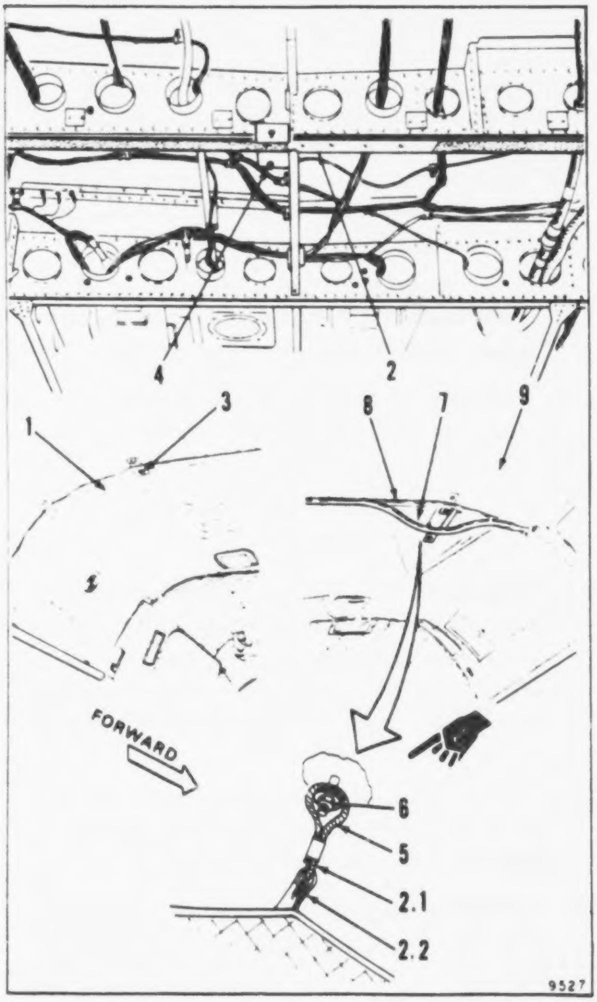
Procedure is same to install all cabin ceiling blankets. Installation of blanket between stations 160 and 200 is shown here. Number of socket fasteners varies for each blanket.

1. **Position blanket (1)** on structure (2) after installation rope (2.1) in blanket loops (2.2) and align socket fasteners (3) with studs (4) at helicopter centerline.
2. **At centerline,** press 2 fasteners (3) on studs (4).
3. **Have helper support blanket (1)** and pass loop (5) of rope (2.1) over standoff (6) at four places.
4. Deleted.

NOTE

To make blanket tight, hold blanket at edge and pull away from stud.

5. **Press hook tape (7) on blanket (1) at aft end to pile tape (8) on blanket (9).** Press blanket (1) tight against blanket (9). Make sure there are no gaps between blankets.



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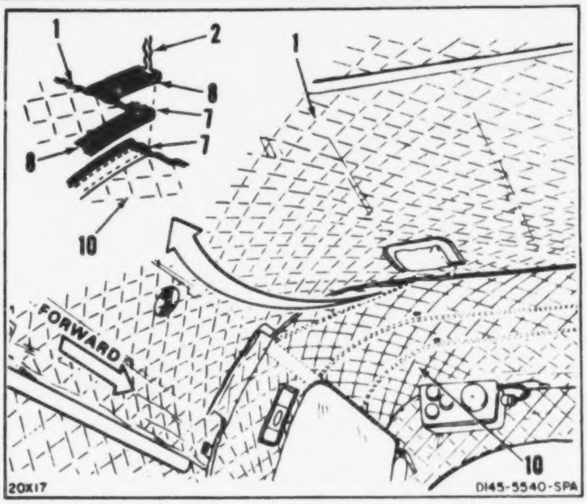
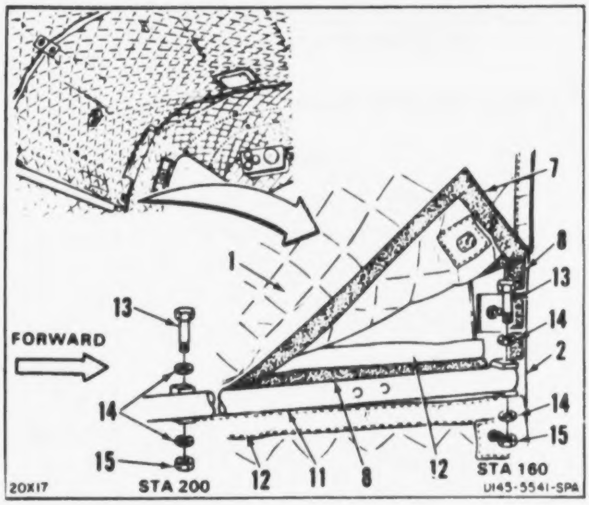
2-210 INSTALL CABIN ACOUSTIC BLANKETS (Continued) 2-210

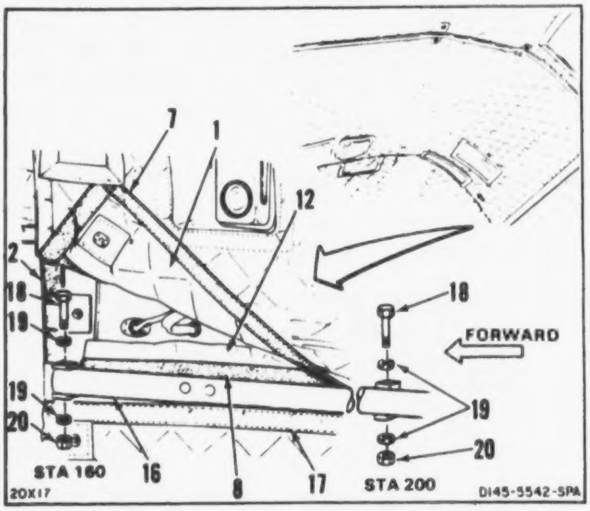
6. **Press hook tape (7) on blanket (1) at left forward end to pile tape (8) on structure (2).** Press blanket (1) tight against structure (2). Make sure there are no gaps.
7. **Press hook tape (7) on blanket (10) to pile tape (8) on blanket (1).** Press blanket (10) tight against blanket (1). Make sure there are no gaps between blankets.


1
2
1
8
7
7
8
10
FORWARD
10
20X17
D145-5540-SPA

8. **Pull upper troop seat rail (11) on left side, slightly away from blanket (1). At same time, press hook tape (7) on blanket to pile tape (8) on structure (2). Press hook tape on blanket to pile tape (8) on side blanket (12).**
9. Press blanket (1) tight against structure (2) and blanket (12). Make sure there are no gaps between blanket and structure.
10. **Install two bolts (13),** four washers (14), and two nuts (15) on upper troop seat rail (11).


7
8
1
13
13
FORWARD
14
2
14
14
15
15
STA 200
12
11
8
12
STA 160
20X17
D145-5541-SPA

11. **Pull upper troop seat rail (16) on right side slightly away from blanket (1).** At same time, press hook tape (7) on blanket to pile tape (8) on structure (2). Press hook tape on blanket to pile tape (8) on side blanket (17).
12. Press blanket (1) tight against structure (2) and blanket (17). Make sure there are no gaps between blanket and structure.
13. **Install two bolts (18),** four washers (19), and two nuts (20) on upper troop seat rail (16).


7
1
12
2
18
19
18
FORWARD
19
20
19
20
STA 160
16
8
17
STA 200
20X17
D145-5542-SPA

GO TO NEXT PAGE

2-210 INSTALL CABIN ACOUSTIC BLANKETS (Continued) 2-210

INSTALL SIDE BLANKETS

NOTE

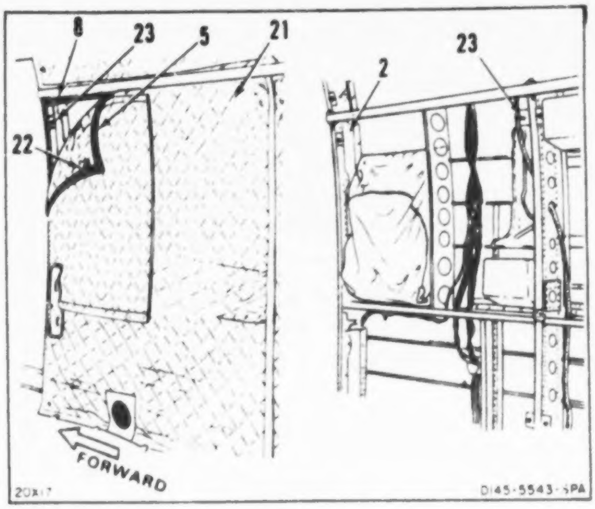
Procedure is same to install all cabin side blankets. Installation on blanket on right side between stations 160 to 200 is shown here.

14. **Position blanket (21)** on structure (2) and align socket fasteners (22) with studs (23).
15. **Press four fasteners (22) on studs (23).**

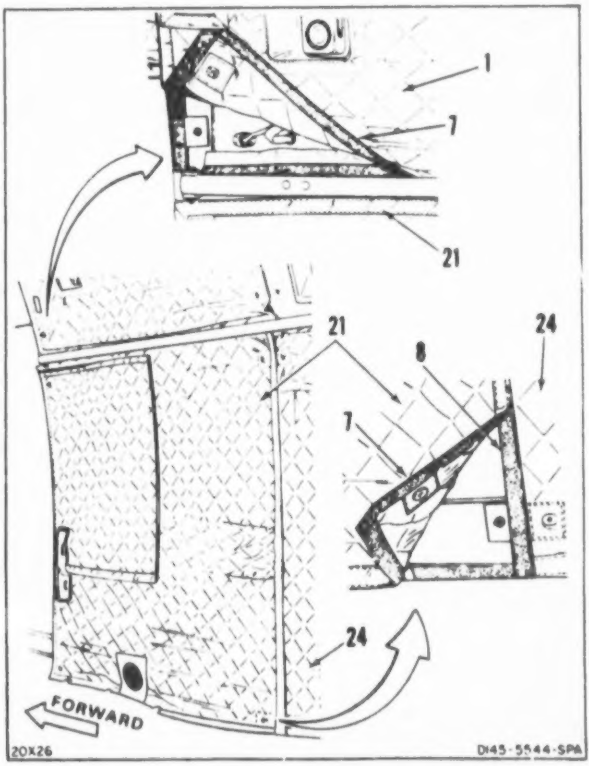
NOTE

To make blanket tight, hold blanket at edge and pull away from stud.

16. **Press hook tape (7) on blanket (21) to pile tape (8) on structure (2).** Press blanket tight against structure. Make sure there are no gaps between blanket and structure.



17. **Press hook tape (7) on blanket (21) to pile tape (8) on blanket (24).**
18. **Press hook tape (7) on blanket (1) to pile tape (8) on blanket (21).**
19. Press blanket (1) tight against blanket (21). Make sure there are no gaps between blankets.



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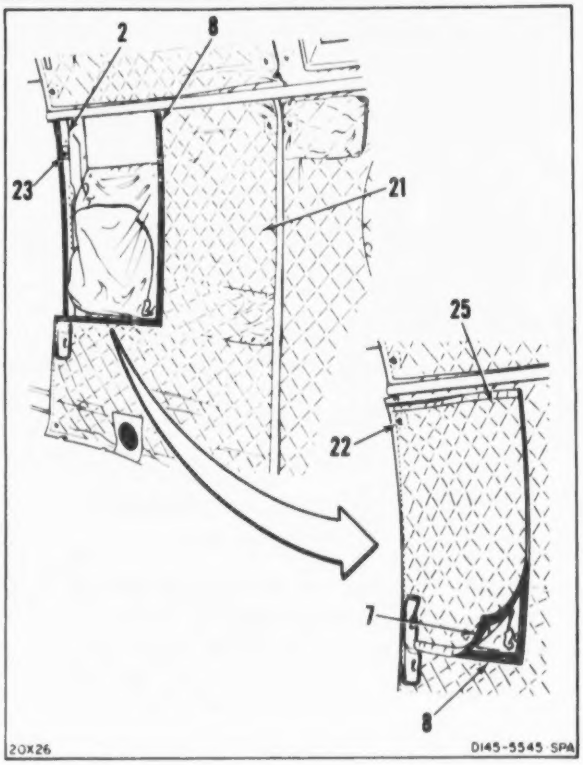
2-210 INSTALL CABIN ACOUSTIC BLANKETS (Continued) 2-210

INSTALL ACCESS PANELS

NOTE

Procedure is same to install all acoustic blanket access panels. Installation of panel in right side blanket between stations 160 and 200 is shown here.

20. **Position panel (25)** on blanket (21) and align socket fastener (22) with stud (23).
21. **Press fastener (22)** on stud (23).
22. **Press hook tape (7) on panel (25) to pile tape (8) on blanket (21) and structure (2).**
23. Press panel (25) tight against blanket (21) and structure (2). Make sure there are no gaps between blanket and structure.



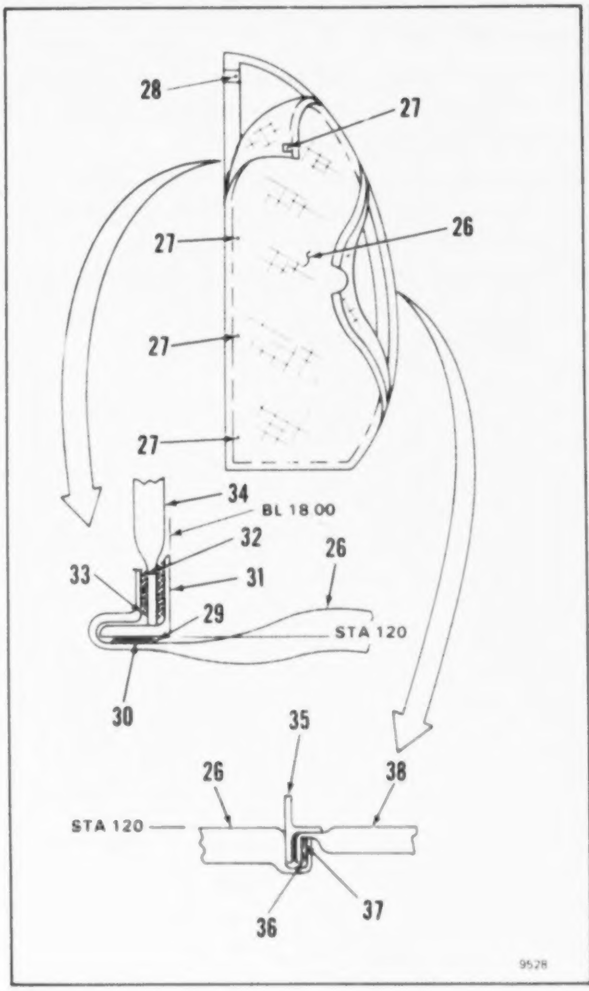
GO TO NEXT PAGE

2-210 INSTALL CABIN ACOUSTIC BLANKETS (Continued) 2-210

INSTALL HEATER AND AVIONIC COMPARTMENT BLANKETS

Heater Blanket

24. **Position blanket (26)** and align socket fastener (27) with stud (28).
25. **Press four fasteners (27)** on four studs (28).
26. **Press hook (29)** on blanket (26) on pile tape (30) attached to structure (31). Pull edge of blanket (26) around structure (31) and press hook tape (32) on blanket (26) to pile tape (33) on blanket (34).
27. **Pull right hand edge of blanket (26)** around structure (35). Press hook tape (36) on blanket (26) on pile tape (37) on blanket (38). Make sure there are no gaps between blanket and structure.

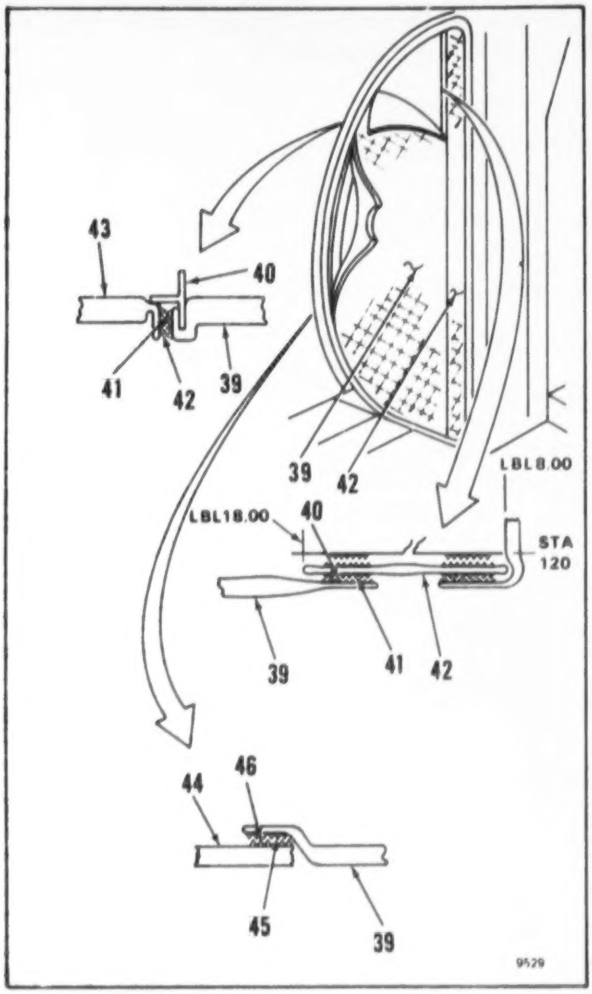

28
27
26
27
27
27
34
BL 18.00
32
26
33
31
29
STA 120
30
35
26
38
STA 120
36
37
9528

GO TO NEXT PAGE

2-210 INSTALL CABIN ACOUSTIC BLANKETS (Continued) 2-210

Avionic Blanket

28. Position upper right hand side of blanket (39) and press hook tape (40) against pile tape (41) on blanket (42).
29. Pull upper left hand edge of blanket (39) around structure and press hook tape (41) against pile tape (42) on blanket (43).
30. Pull lower left hand edge of blanket (39) over blanket (44). Press hook tape (45) on blanket (39) on pile tape (46) on blanket (44).


43
40
41
42
39
39
42
LBL8.00
LBL18.00
40
STA 120
39
41
42
44
46
45
39
9529

FOLLOW-ON MAINTENANCE:

Install troop seat (Task 2-229).

Install NVG blackout curtain (Task 2-108.1).

GO TO NEXT PAGE

2-210.1 REPLACE FERRY FUEL SYSTEM GROUNDING RECEPTACLES 2-210.1

INITIAL SETUP

Applicable Configurations:

With **19**

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

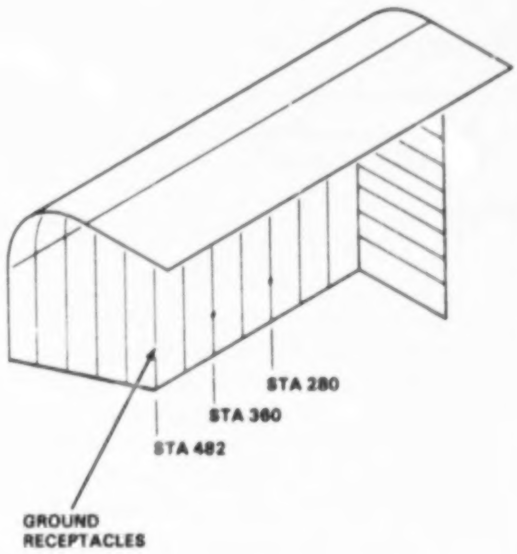
Dry Cleaning Solvent (E162)
Cloths (E135)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off


STA 280
STA 360
STA 482
GROUND RECEPTACLES
9630

GO TO NEXT PAGE

2-210.1 REPLACE FERRY FUEL SYSTEM GROUNDING RECEPTACLES (Continued) 2-210.1

NOTE

Grounding receptacles are at station 280, 360 and 482. Procedure to remove any of the three is identical. Receptacle at station 482 shown.

REMOVE

1. **Remove nut (1)** and washer (2).
2. **Remove receptacle (3)** and washer (4) from back of structure.

INSTALL

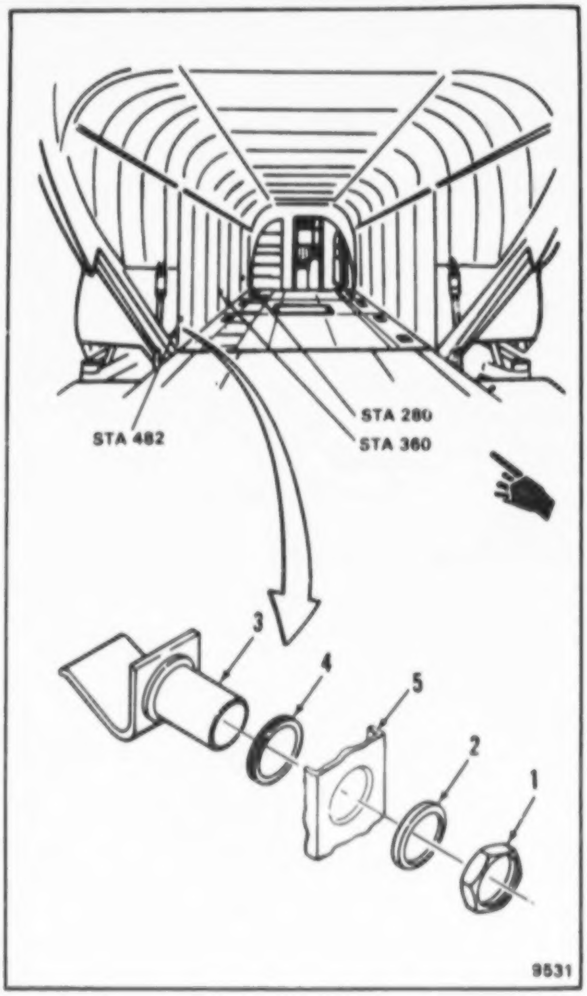
WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. **Clean structure (5).** Use cloths (E135). Damp with dry cleaning solvent (E162). Wear gloves (E186).
4. **Install washer (4)** on receptacle (3).
5. **Insert receptacle (3)** in back of structure (5).
6. **Install washer (2)** and nut (1) on receptacle (3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-211 REMOVE SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS 2-211

INITIAL SETUP

Applicable Configurations:
All

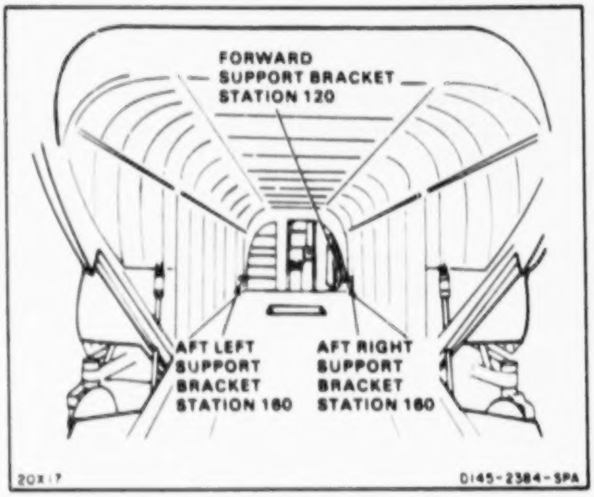
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

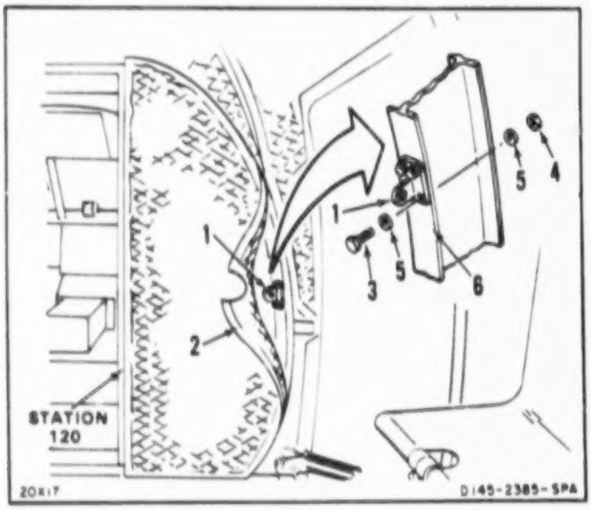
Personnel Required:
67U10 Medium Helicopter Repairer

References:
Task 2-222

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Remove Upper Cabin Door (Task 2-150)
Remove Upper Cabin Door Track (Task 2-155)


FORWARD SUPPORT BRACKET STATION 120
AFT LEFT SUPPORT BRACKET STATION 160
AFT RIGHT SUPPORT BRACKET STATION 160
20X17
D145-2384-SPA

1. **Remove forward support bracket (1)** as follows:
   - a. Pull edge of blanket (2) away from bracket (1).
   - b. Remove lockwire from four bolts (3).
   - c. Remove four nuts (4), light washers (5), and four bolts (3).
   - d. Remove bracket (1) from structure (6).


1
2
STATION 120
1
3
5
6
5
4
20X17
D145-2385-SPA

GO TO NEXT PAGE

2-211 REMOVE SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-211

2. **Remove aft right support bracket (7)** as follows:

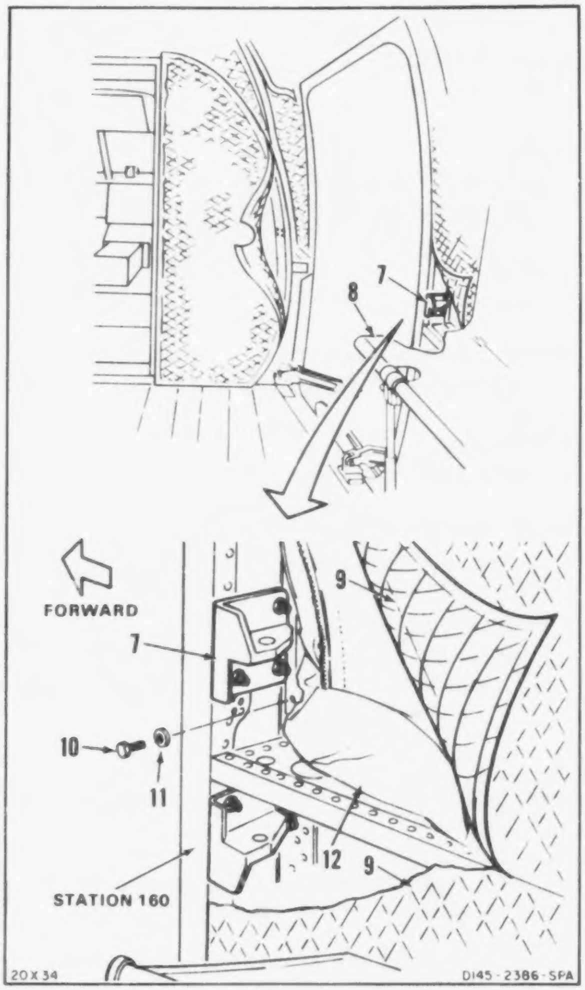
NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

a. Make sure troop seat (8) next to bracket (7) is unstowed (Task 2-222).

b. Pull back edges of acoustic blanket (9) next to bracket (7).

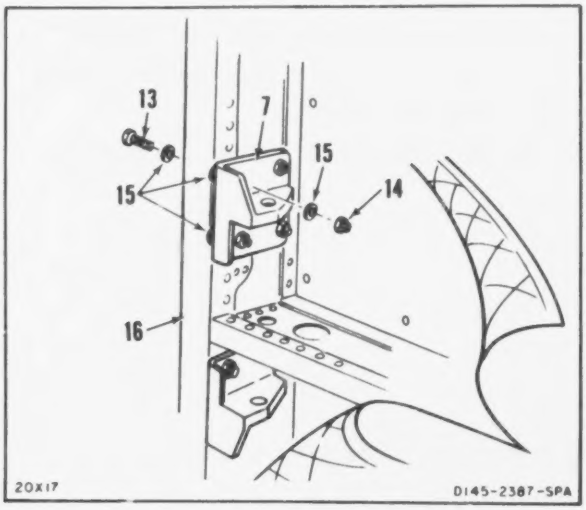
c. Remove four screws (10) and washers (11) from stowage container (12). Remove stowage container.


7
8
FORWARD
7
9
10
11
12
9
STATION 160
20X34
D145-2386-SPA

d. Remove lockwire from four bolts (13).

e. Remove four nuts (14), 12 washers (15), and bolts (13).

f. Remove bracket (7) from structure (16).


13
7
15
14
15
16
20X17
D145-2387-SPA

GO TO NEXT PAGE

2-211 REMOVE SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-211

3. **Remove aft left support bracket (17)** as follows:

NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

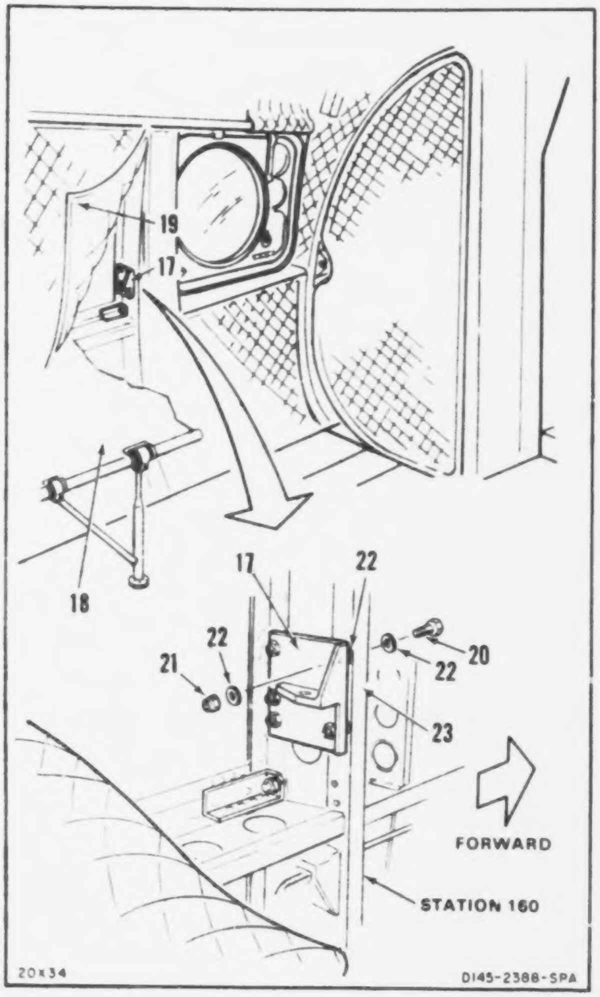
a. Make sure troop seat (18) next to bracket (17) is unstowed (Task 2-222).

b. Pull back edges of acoustic blanket (19) next to bracket (17).

c. Remove lockwire from five bolts (20).

d. Remove five nuts (21), fifteen washers (22), and five bolts (20).

e. Remove bracket (17) from support (23).


19
17
18
17
22
22
21
22
20
22
23
FORWARD
STATION 160
20x34
D145-2388-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Torque Wrench, 30 to 150 Inch-Pounds

Steel Rod, 1/2-Inch Diameter x 8 Inches Long

Materials:

Lockwire (E231)

Personnel Required:

67U10 Medium Helicopter Repairer

67U30 Inspector

References:

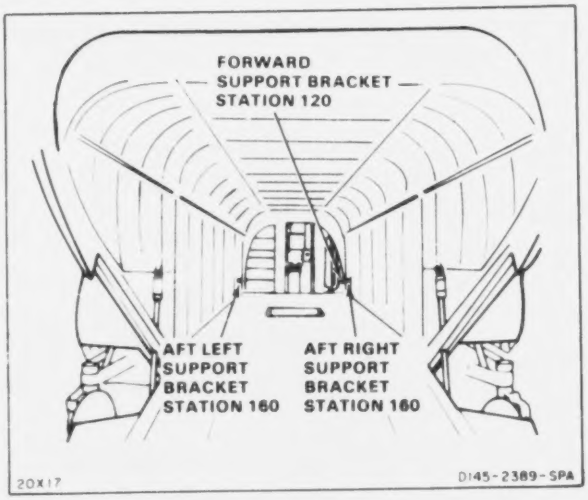
TM 55-1520-240-23P

Task 2-156

Task 2-158

Task 2-159

Task 2-227


FORWARD SUPPORT BRACKET STATION 120
AFT LEFT SUPPORT BRACKET STATION 160
AFT RIGHT SUPPORT BRACKET STATION 160
20X17
D145-2389-SPA

---

1. **Install aft left support bracket (1)** as follows:

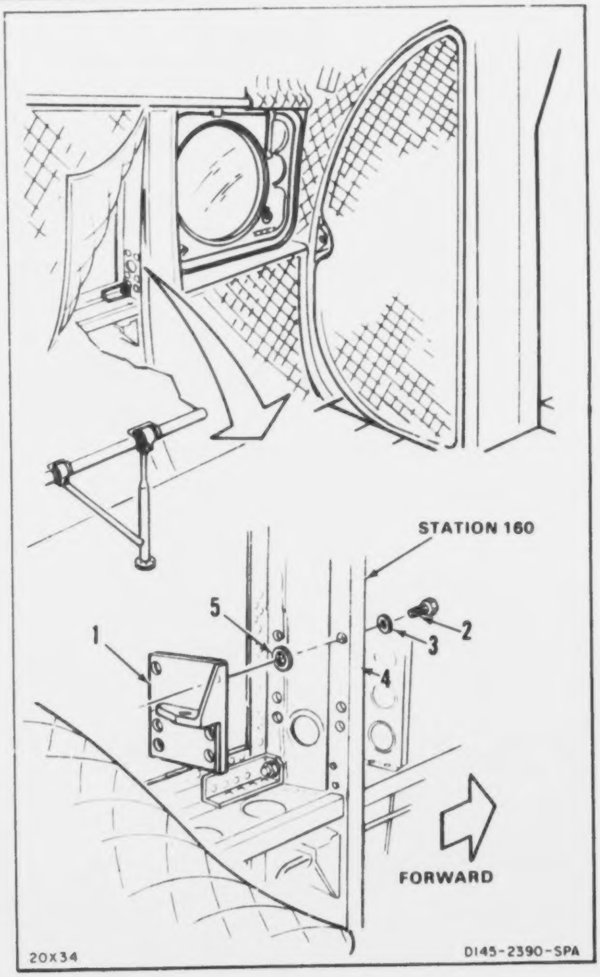
NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

a. Install five bolts (2) with washers (3) through structure (4).

b. Install five washers (5) on threads of bolts (2) on aft side of structure (4).

c. Position bracket (1) on bolts (2).


STATION 160
1
5
2
3
4
FORWARD
20X34
D145-2390-SPA

GO TO NEXT PAGE

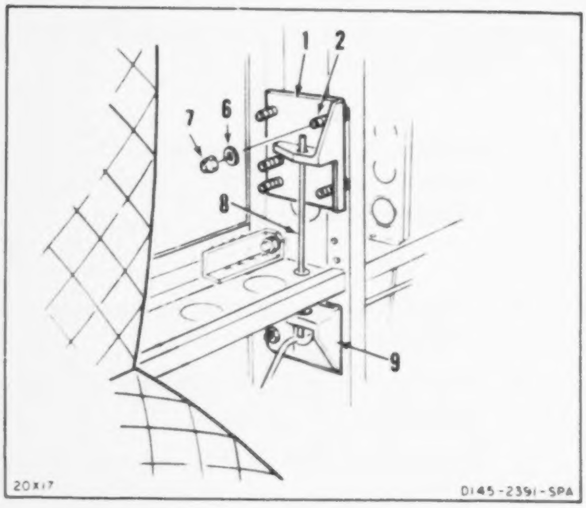
2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-212

d. Install five washers (6) and nuts (7) loosely on bolts (2). Do not tighten nuts (7).

e. Place rod (8) through upper bracket (1) and lower bracket (9).

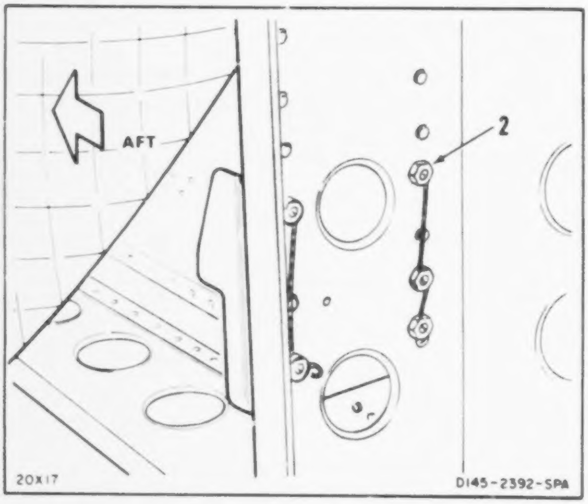
f. **Torque nuts (7) to 55 inch-pounds.**

g. Remove rod (8) from brackets (1 and 9).


1
2
7
6
8
9
20x17
D145-2391-SPA

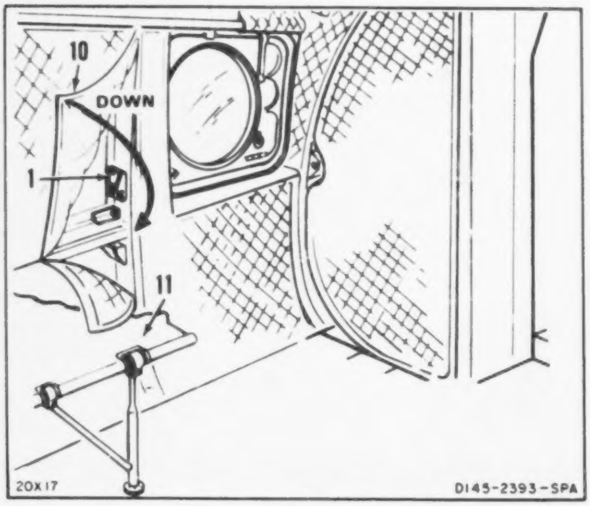
h. Install lockwire (E231) on five bolts (2).

INSPECT


AFT
2
20x17
D145-2392-SPA

i. Press down edge of acoustic blanket (10) next to bracket (1).

j. Stow troop seat (11) next to bracket (1). (Task 2-227).


10
DOWN
1
11
20x17
D145-2393-SPA

GO TO NEXT PAGE

2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-212

2. **Install aft right support bracket (12)** as follows:

NOTE

Procedure is same for upper and lower aft support brackets. Upper bracket is shown here.

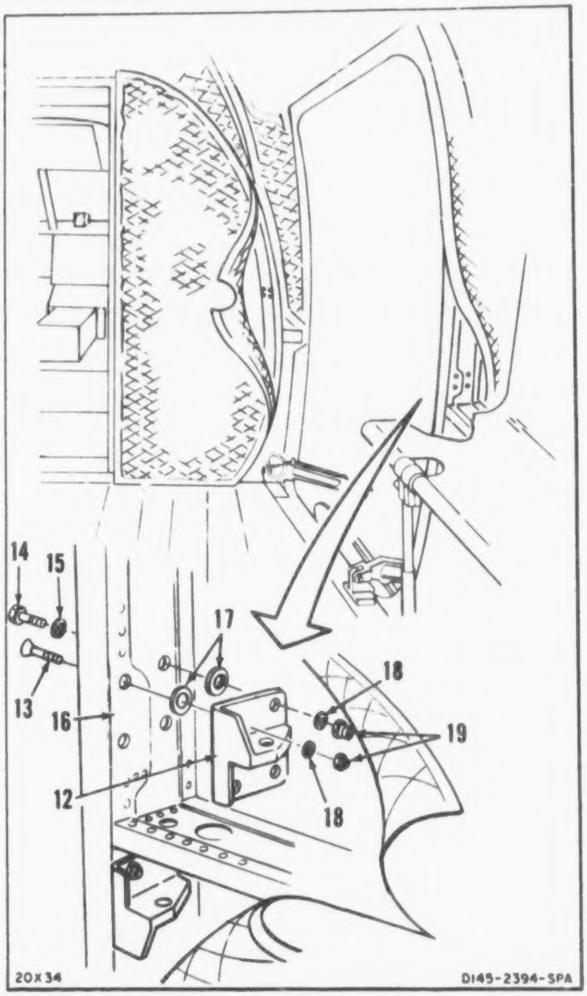
a. Install two countersunk head screws (13).

b. Install two bolts (14) with washers (15) through structure (16).

c. Install four washers (17) on bolts (14).

d. Position bracket (12) on bolts (14) and screws (13).

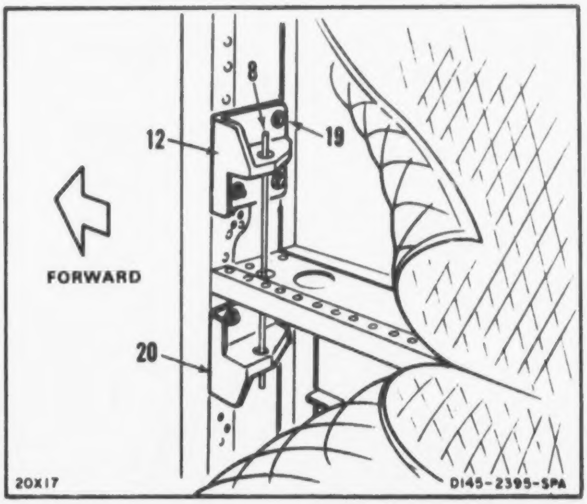
e. Install four washers (18) and nuts (19) loosely on bolts (14) and screws. Do not tighten nuts.


14
15
17
18
13
16
19
12
18
20X34
D145-2394-SPA

f. Place rod (8) through upper bracket (12) and lower bracket (20).

g. **Torque nuts (19) to 55 inch-pounds.**

h. Remove rod (8) from brackets (12 and 20).

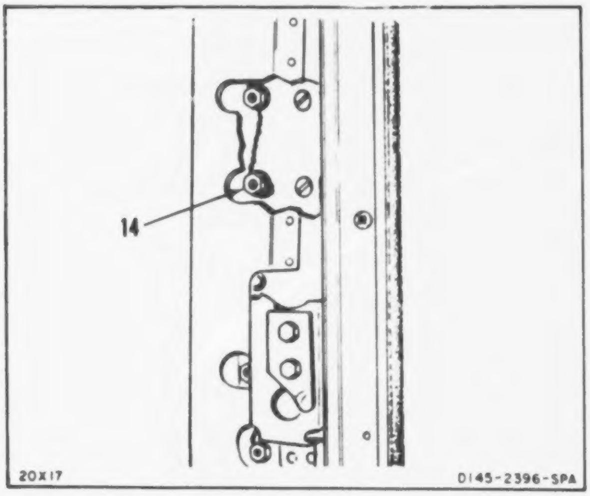

8
12
19
FORWARD
20
20X17
D145-2395-SPA

GO TO NEXT PAGE

2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-212

i. Install lockwire (E231) on two bolts (2).

INSPECT


14
20X17
0145-2396-SPA

j. Position stowage container (21) and install four screws (22) and washers (23).

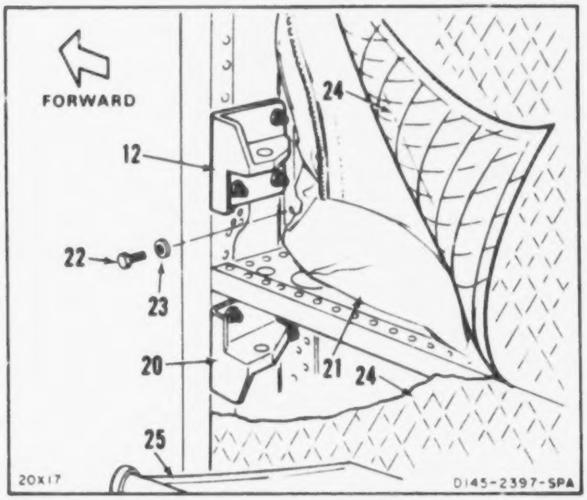
k. Press down edges of acoustic blanket (24) next to bracket (12 and 20).

l. Stow troop seat (25) next to bracket (12). (Task 2-227).

m. Install upper cabin door track (Task 2-156).

n. Install upper cabin door (Task 2-158).

o. Adjust upper cabin door (Task 2-159).


FORWARD
24
12
22
23
20
21
24
25
20X17
0145-2397-SPA

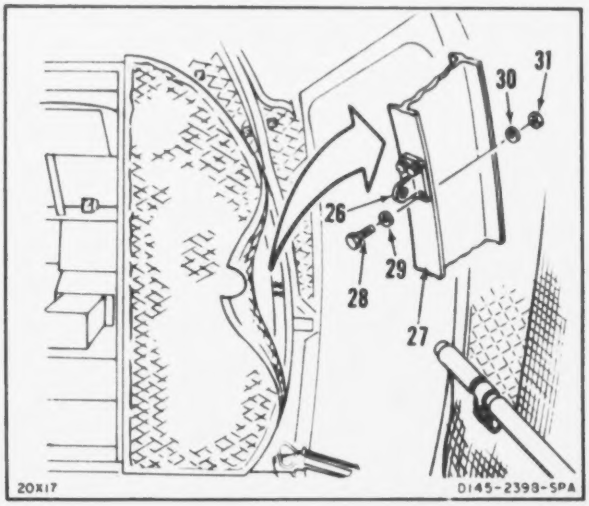
3. **Install forward support bracket (26)** as follows:

   a. Position bracket (26) on structure (27).

   b. Install four bolts (28) and washers (29) through bracket (26) and structure (27).

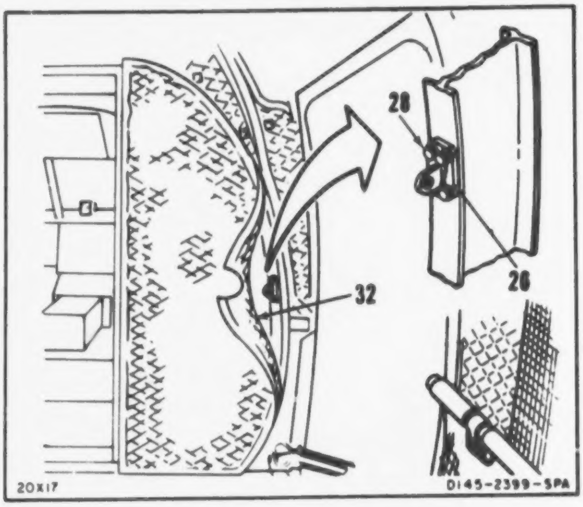
   c. Install four washers (30) and nuts (31) on bolts (28).

   d. **Torque nuts (30) to 55 inch-pounds.**


30
31
26
29
28
27
20X17
0145-2398-SPA

GO TO NEXT PAGE

2-212 INSTALL SUPPRESSIVE FIRE SYSTEM SUPPORT BRACKETS (Continued) 2-212


28
32
26
20X17
D145-2399-SPA

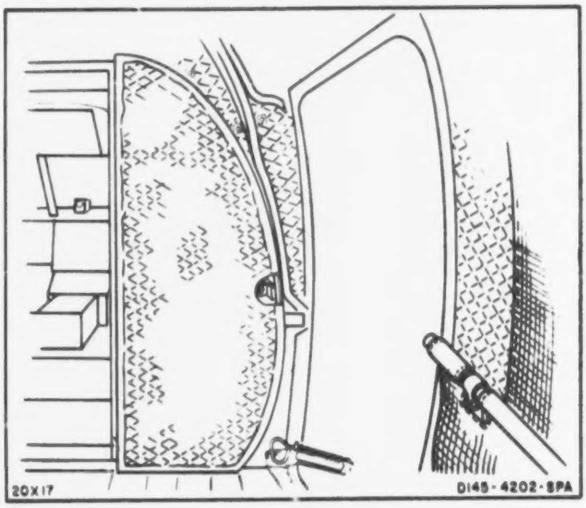
e. Install lockwire (E231) on bolts (28).

INSPECT

f. Press down edges of acoustic blanket (32) next to bracket (26).

FOLLOW-ON MAINTENANCE:

None


20X17
D145-4202-SPA

END OF TASK

2-213 REPLACE TUNNEL DRAINS 2-213

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

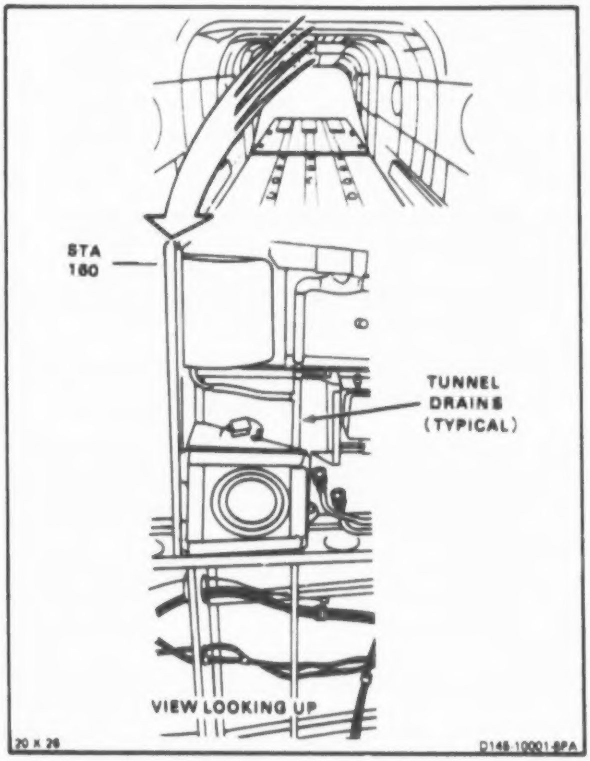
Materials:
Methyl-Ethyl-Ketone (E244)
Cloths (E120)
Cement (E101 or E103)
Gloves (E186)
Tubing (E430)
Jacket (E206)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 1520-240-23P

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cabin Acoustic Blankets Removed as Required (Task 2-208)

General Safety Instructions:

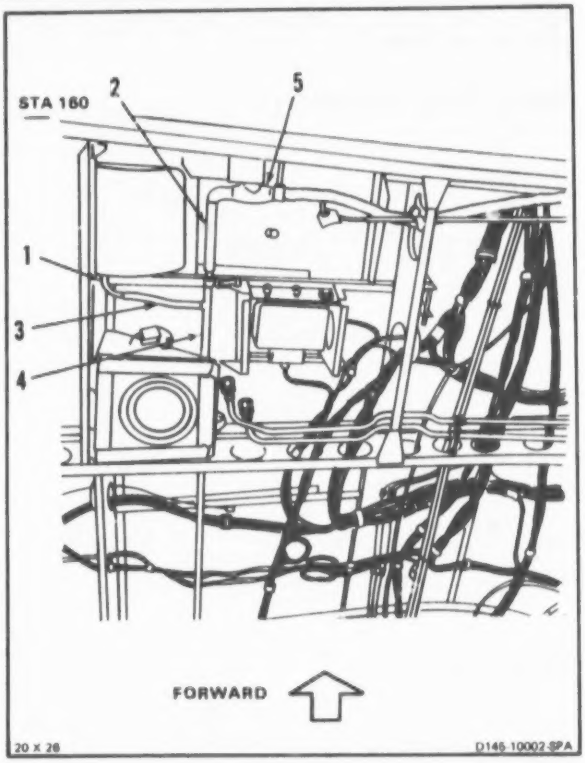


WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-213 REPLACE TUNNEL DRAINS (Continued) 2-213



NOTE

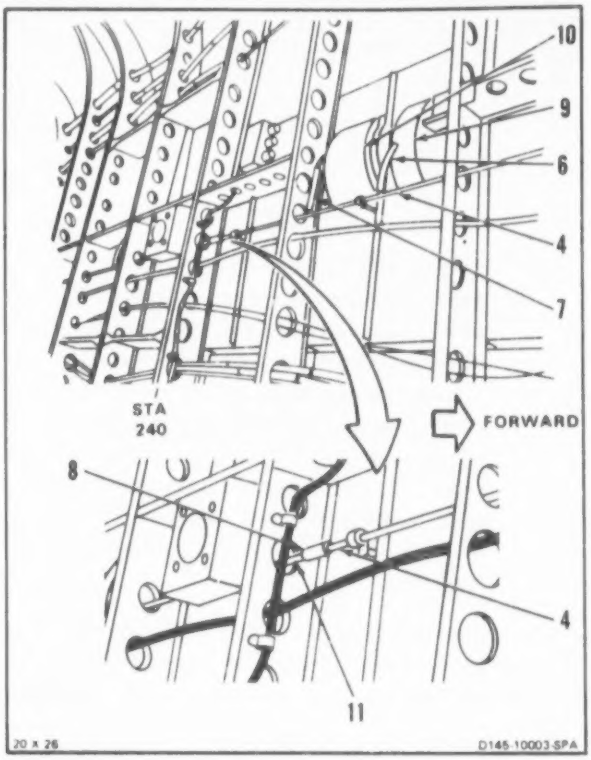
Procedure to replace all sections of rigid tubing and splice tubing is same. Replacement of rigid and splice tubing between stations 160 and 240 is shown here.

1. **Measure and record lengths of splice tubes (1 and 2).**
2. **Cut splice tube (1) from tunnel drain well (3) and rigid tubing (4).**
3. **Cut splice tube (2) from rigid tubing (4) and flexible hose fitting (5).**
4. Clean old cement from well (3), rigid tubing (4), and fitting (5). Use cloths (E120) and methyl-ethyl-ketone (E244). Wear gloves (E186).

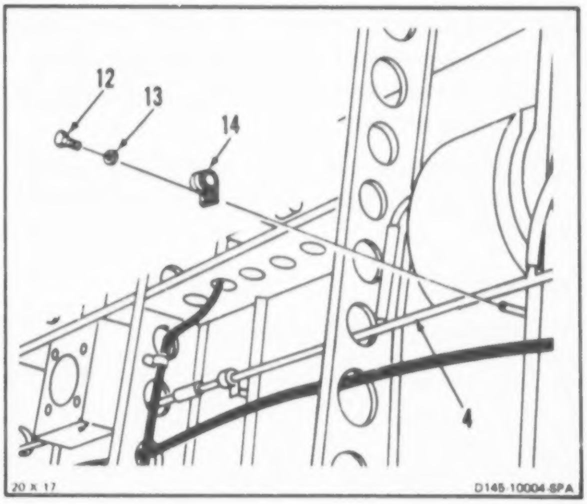
GO TO NEXT PAGE

2-213 REPLACE TUNNEL DRAINS (Continued) 2-213

5. **Measure and record lengths of splice tubes (6, 7, and 8).**
6. **Cut splice tubes (6 and 7) from rigid tubing (4) and drain wells (9 and 10).**
7. **Cut tube (8) from rigid tubings (4 and 11).**
8. Clean old cement from rigid tubing (4 and 11) and wells (9 and 10). Use cloths (E120) and methyl-ethyl-ketone (E244). Wear gloves (E186).


10
9
6
4
7
STA
240
FORWARD
8
4
11
20 x 26
D145-10003-SPA

9. **Remove four screws (12), washers (13), and clamps (14).**
10. **Remove rigid tubing (4).**
11. **Position rigid tubing (4) and install four screws (12), washers (13), and clamps (14).**


12
13
14
4
20 x 17
D145-10004-SPA

GO TO NEXT PAGE

12. Cut piece of jacket (E206) equal in length to tube (8).

13. Cut pieces of tube (E430) equal lengths of tubes (7, 6, and 1).

WARNING

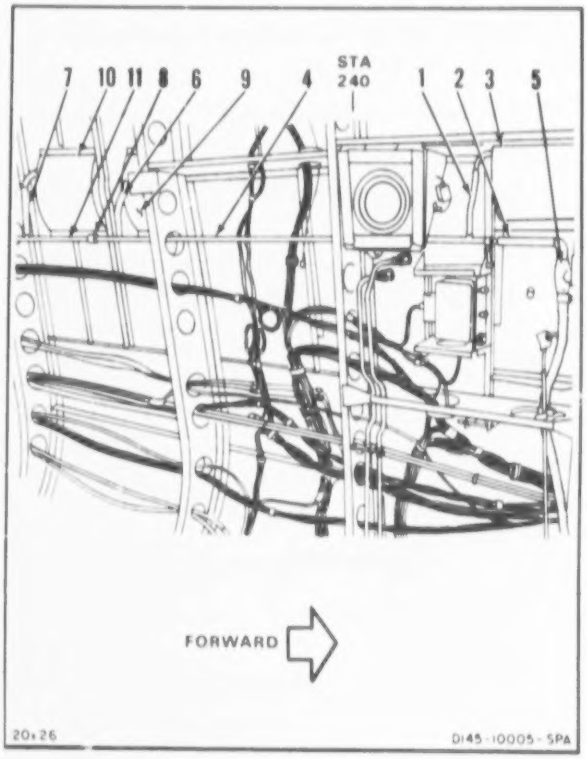
Cement (E101) or (E103) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

14. Apply light coat of cement (E101 or E103) to outer surfaces of rigid tubings (4 and 11). Do not smear cement on inside of rigid tubings.

15. **Slide splice tube (8) over ends of rigid tubings (11 and 4). Slide tube (8) 1/2 to 5/8-inch from ends.**

16. **Slide splice tubes (7, 6, and 1) over ends of rigid tubing (4) and wells (10, 9, and 3). Slide tubes (6, 7, and 1) 1/2 to 5/8-inch from ends.**

17. **Install splice tube (2) over end of rigid tubing (4), and into flexible hose fitting (5).**



INSPECT

FOLLOW-ON MAINTENANCE:

Install cabin acoustic blankets (Task 2-210).

END OF TASK

2-214 REMOVE FUSELAGE DRAIN PLUG 2-214

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

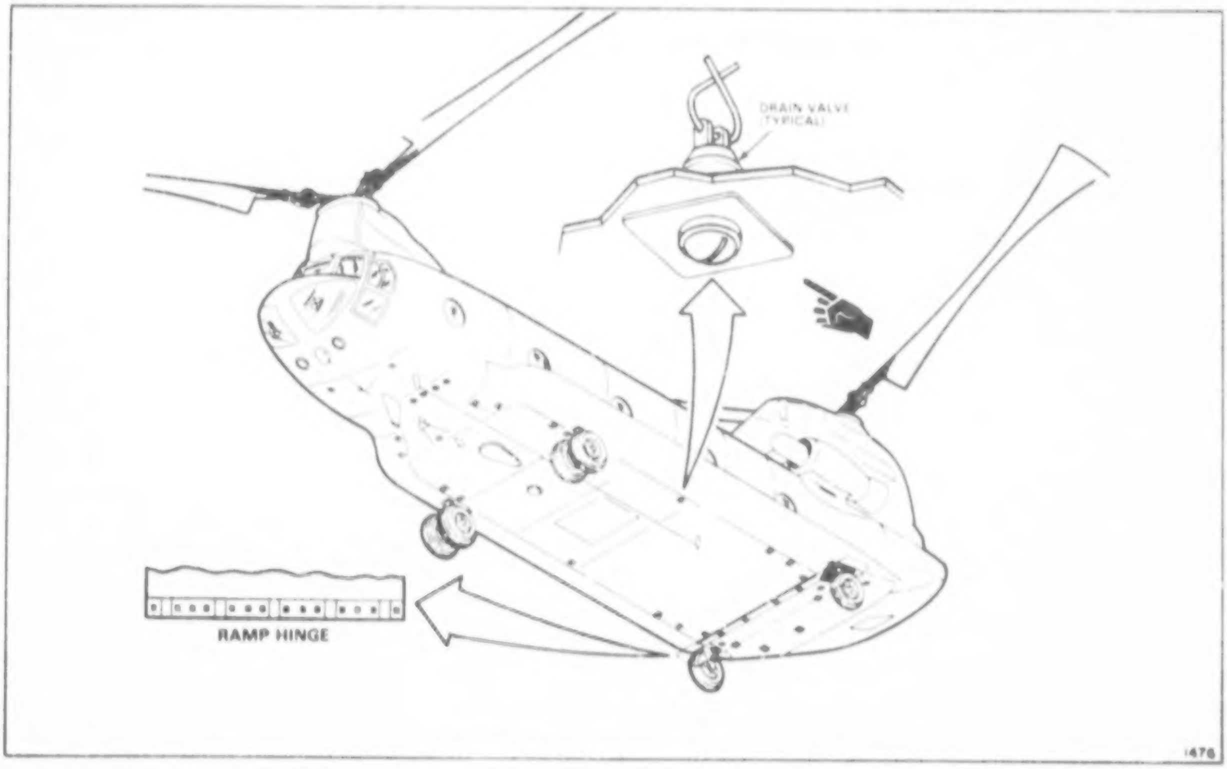
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



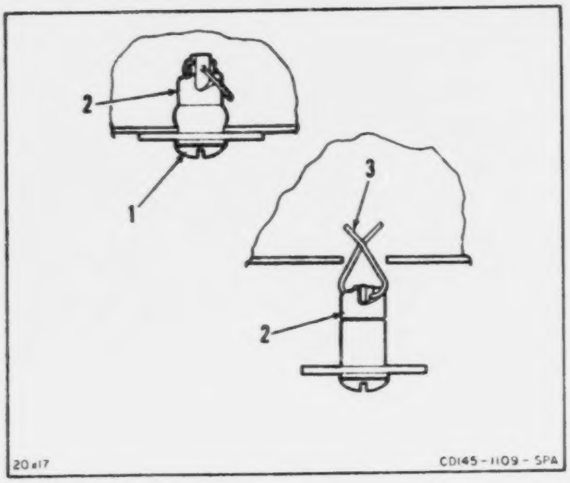
GO TO NEXT PAGE

2-214 REMOVE FUSELAGE DRAIN PLUG (Continued) 2-214

NOTE

Procedures are same for removing any drain plug.

1. **Turn screw (1) counterclockwise.** Drain plug (2) will drop, and hang by retainer (3)
2. **Pull plug (2) from fuselage.**



NOTE

Drain plugs should be removed and stored in aircraft unless water landings are planned.

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-215 INSTALL FUSELAGE DRAIN PLUG 2-215

INITIAL SETUP

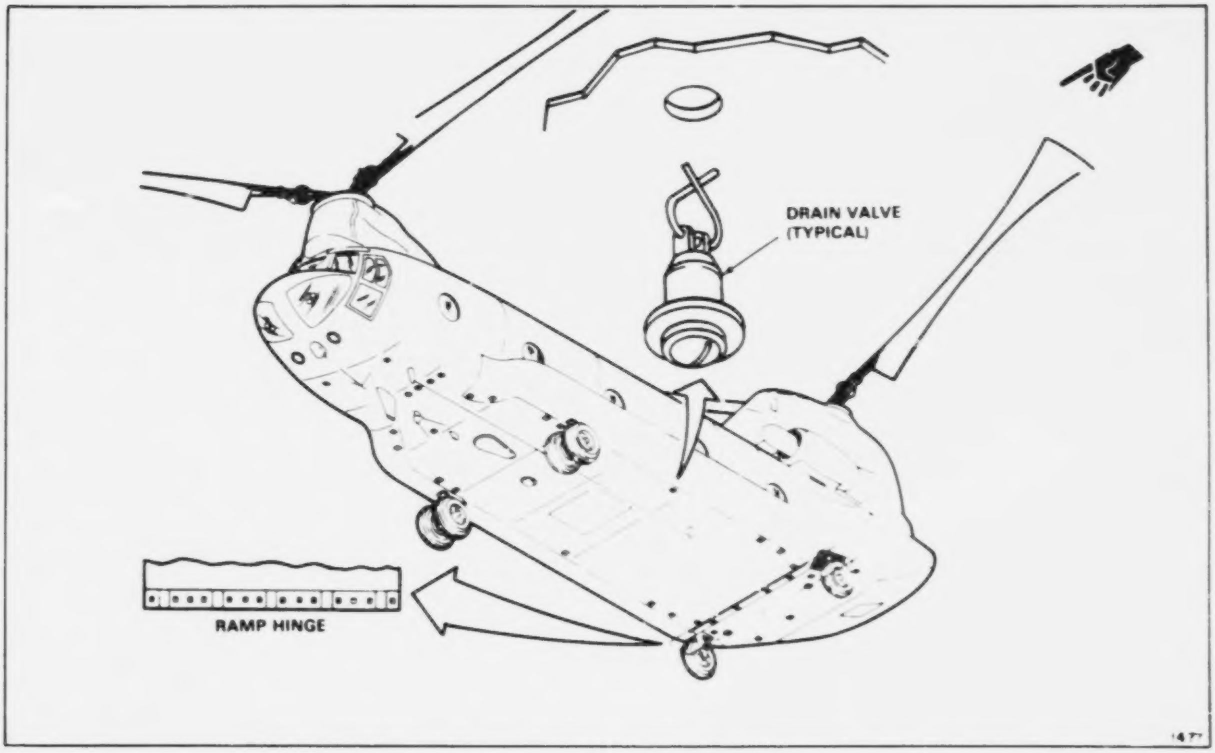
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P


DRAIN VALVE (TYPICAL)
RAMP HINGE
1477

GO TO NEXT PAGE

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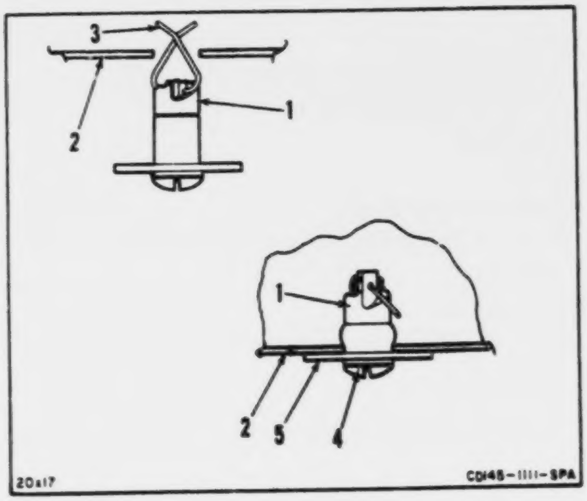
2-215 INSTALL FUSELAGE DRAIN PLUG (Continued) 2-215



NOTE

Procedures are same for installing any drain plug.

1. **Position drain plug (1)** under drain hole in skin (2).
2. **Spread wire retainer (3).** Place retainer through drain hole in skin (2).
3. **Install drain plug (1)** in drain hole in skin (2).
4. **Turn screw (4) clockwise** to lock drain plug (1).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-216 REPAIR STRAKES 2-216

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

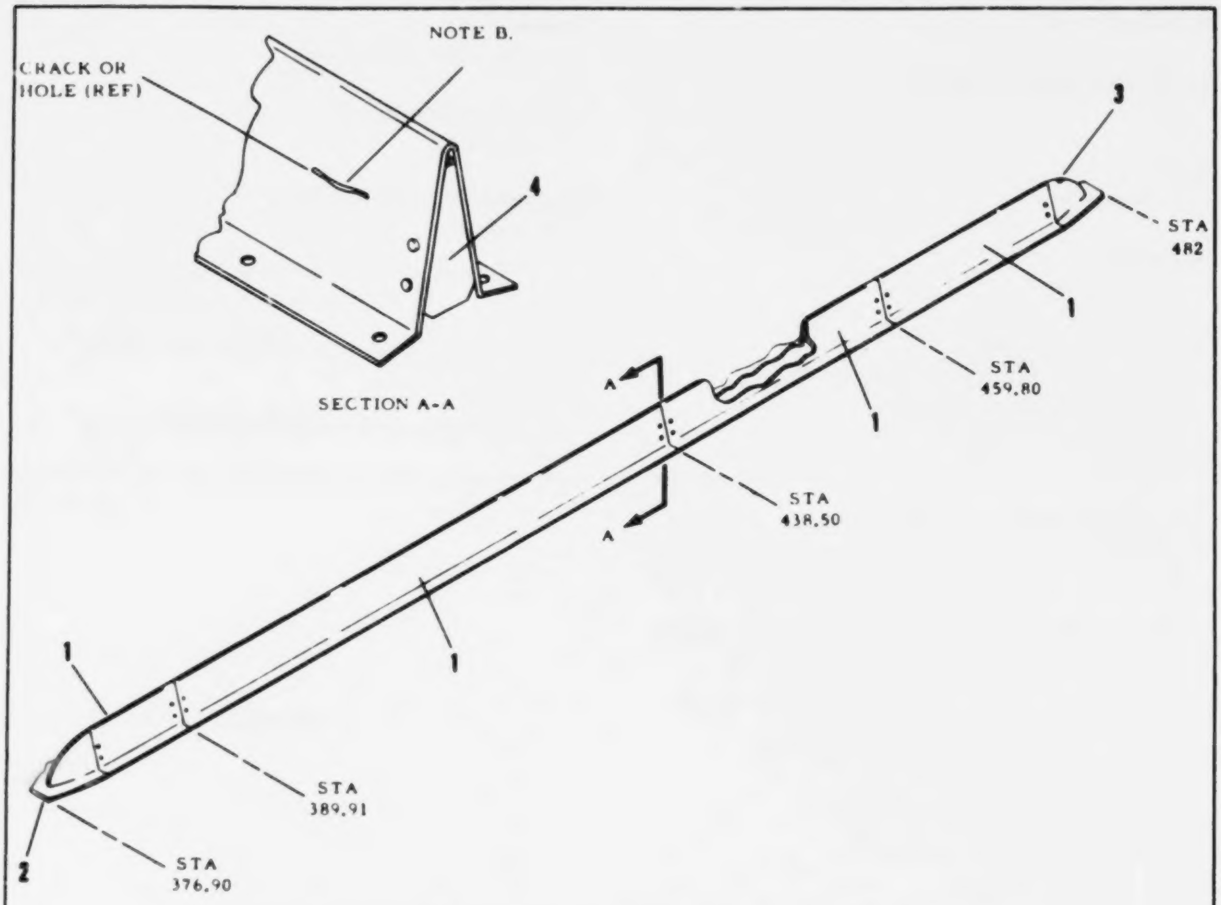
General Safety Instructions:
As Required

---

1. A typical strake installation consists of four formed sections of aluminum alloy and two fiberglass sections.
2. Repair nicks and scratches in aluminum alloy sections. Stop drill small cracks.
3. Minor repair to damaged fiberglass sections is limited to stop drilling small cracks.

GO TO NEXT PAGE

2-216 REPAIR STRAKES (Continued) 2-216


NOTE B.
CRACK OR HOLE (REF)
4
SECTION A-A
A
A
3
STA 482
1
STA 459.80
1
STA 438.50
1
1
1
STA 389.91
2
STA 376.90

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	STRAKE	0.050 2024-T4 CLAD	0.050 2024-T3 CLAD
2	STRAKE NOSE PIECE	6-PLY NO. 181-75 GLASS CLOTH	NOTE C.
3	STRAKE TAIL PIECE	6-PLY NO. 181-75 GLASS CLOTH	NOTE C.
4	CAP	0.025 2024-T4 CLAD	0.025 2024-T3 CLAD

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. EXTERNAL PATCHES NOT PERMITTED. USE INSERTION TYPE PATCHES ONLY

C. REFER TO TM 55-1500-204-25/1 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS

42 X 51 D145-9750-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-217 REMOVE BUFFER BOARDS

INITIAL SETUP

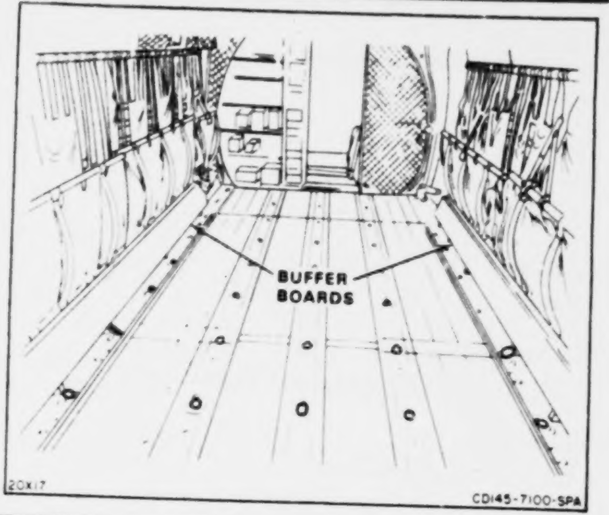
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

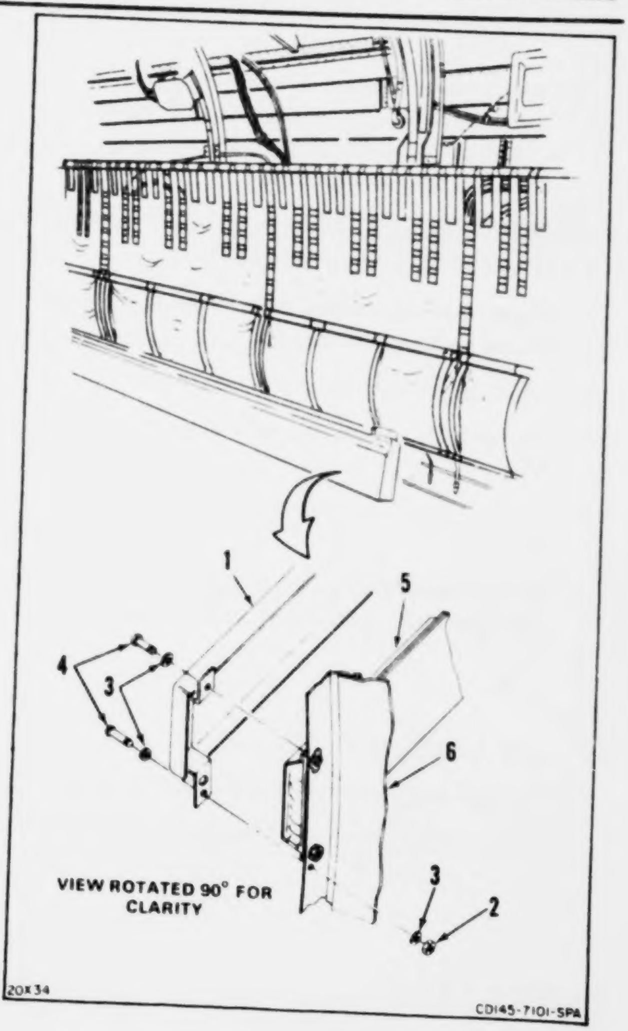
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
One Man Troop Seats Stowed (Task 2-227)
Three Man Troop Seats Stowed (Task 2-233)


BUFFER BOARDS
20X17
CD145-7100-SPA

NOTE

Procedure is same to remove buffer boards on both sides of cabin. Removal of board section on right side is shown here.

1. Have helper support buffer board (1).
2. **Remove 8 nuts (2), 16 washers (3), and 8 bolts (4)** along bottom of buffer board (1).
3. Remove eight bolts (4) and washers (3) along top of buffer board (1).
4. **Remove buffer board (1).**
5. Install eight top bolts (4) and washers (3) in duct (5) and structure (6).


1
5
4
3
6
VIEW ROTATED 90° FOR CLARITY
3
2
20X34
CD145-7101-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-218 INSTALL BUFFER BOARDS 2-218

INITIAL SETUP

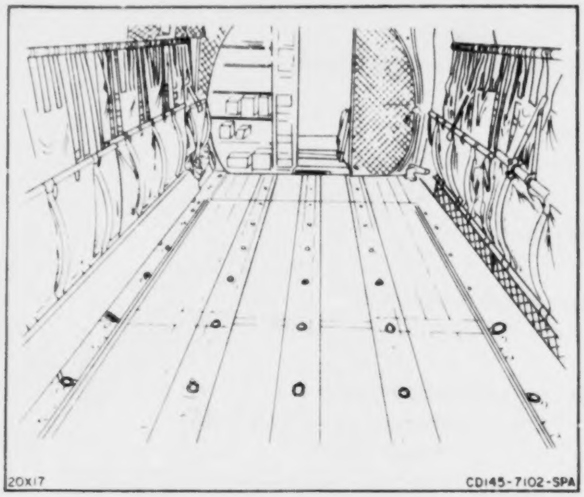
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

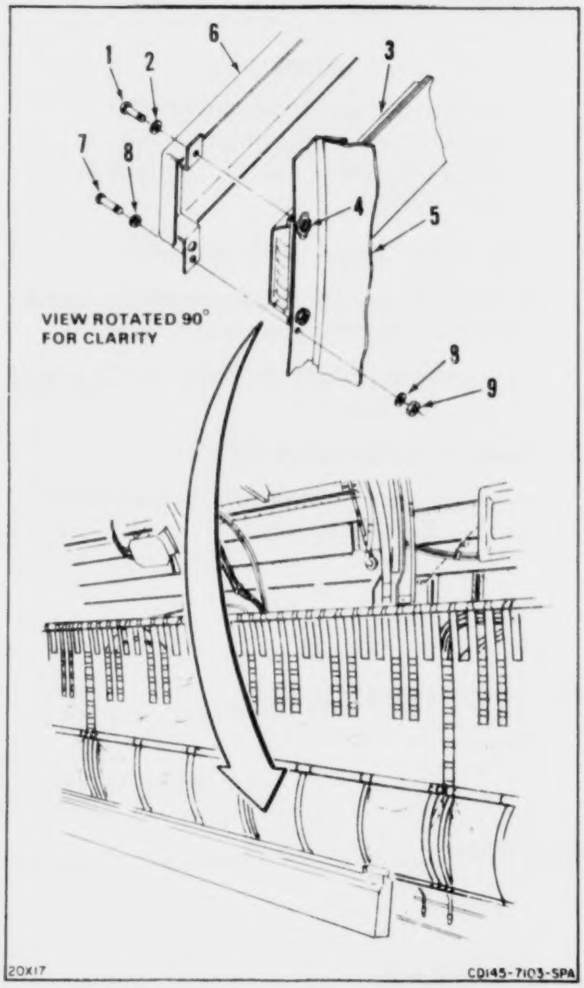
References:
TM 55-1520-240-23P



NOTE

Procedure is same to install buffer boards on right and left sides of cabin. Installation of buffer board section on right side is shown here.

1. Remove six bolts (1) and washers (2) from heat duct (4) and structure (5).
2. **Align holes in buffer board (6), heat duct (4), and structure (5).**
3. Have helper support buffer board (6).
4. **Install bolt (1)** at each end of buffer board (6).
5. Install six bolts (1) along top of buffer board (6).
6. **Install eight bolts (7), washers (8), and nuts (9)** along bottom of buffer board (6).



FOLLOW-ON MAINTENANCE:

Unstow one-man troop seats (Task 2-222).

Unstow three-man troop seats (Task 2-228).

END OF TASK

2-219 REMOVE ENGINE WORK PLATFORM 2-219

INITIAL SETUP

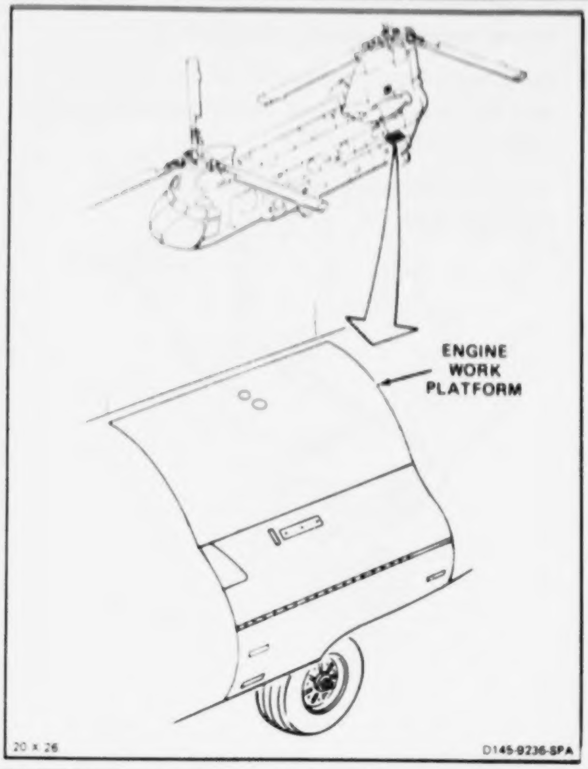
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

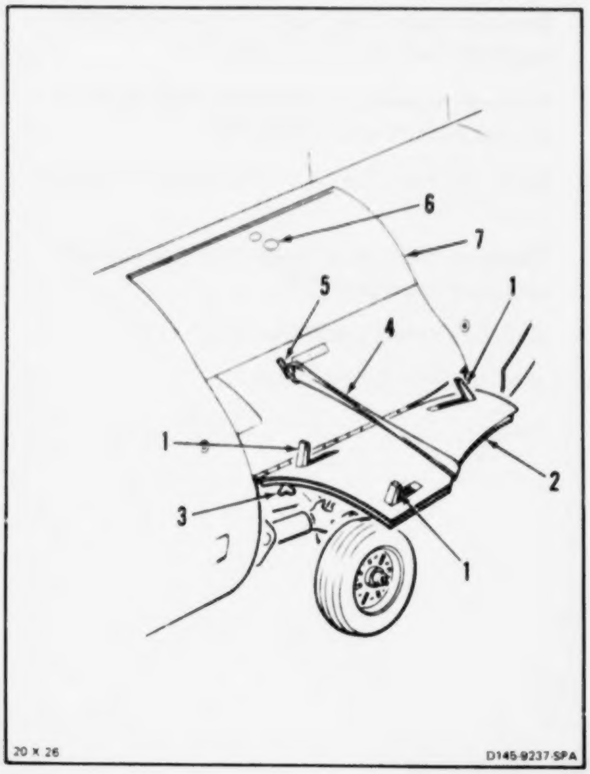
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off



NOTE

Procedure is same to remove right or left powerplant work platform. Left work platform shown here.

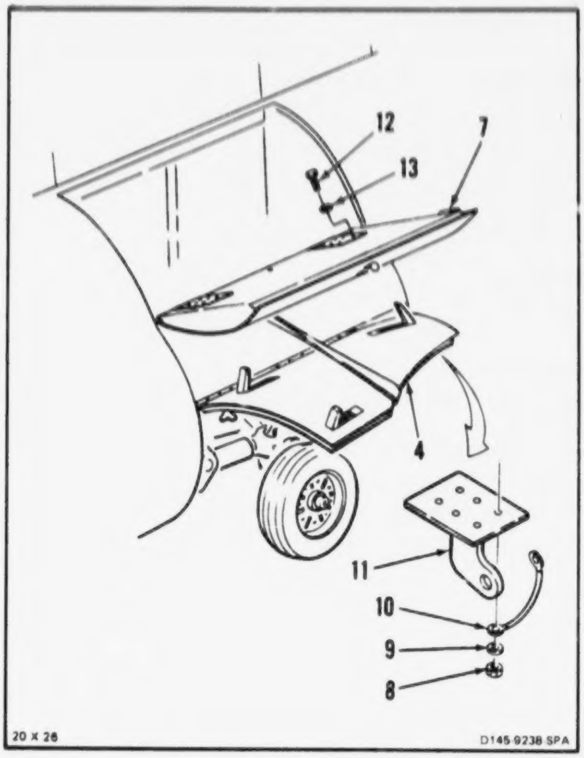
1. Push in and **open three latches (1)** on landing gear access panel (2).
2. Lift panel (2). Turn fastener (3) and **release strap (4).**
3. **Install strap (4) in slot (5).**
4. Press in to release latch (6) on engine work platform (7). **Open platform.**



GO TO NEXT PAGE

2-219 REMOVE ENGINE WORK PLATFORM (Continued) 2-219

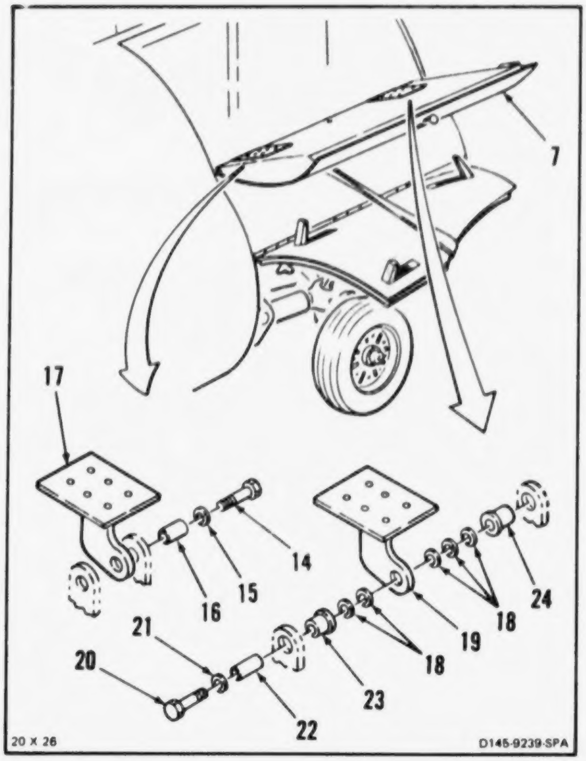
5. **Have helper support platform (7).**
6. Working through access panel (4), **remove nut (8),** washer (9) and **bonding jumper (10)** from aft hinge (11).
7. **Have helper remove screw (12) and washer (13).**


12
7
13
4
11
10
9
8
20 X 26
D145-9238-SPA

8. **Remove bolt (14),** washer (15) and **bushing (16)** from forward hinge (17).
9. **Record number of washers (18) in front of and behind aft hinge (19).**
10. **Remove bolt (20),** and washer (21) from aft hinge (19).
11. **Remove three bushings (22, 23 and 24) and five washers (18).**
12. **Remove work platform (7).**

FOLLOW-ON MAINTENANCE:

None


7
17
14
15
16
21
20
22
23
18
19
18
24
20 X 26
D145-9239-SPA

END OF TASK

2-220 INSTALL ENGINE WORK PLATFORM 2-220

INITIAL SETUP

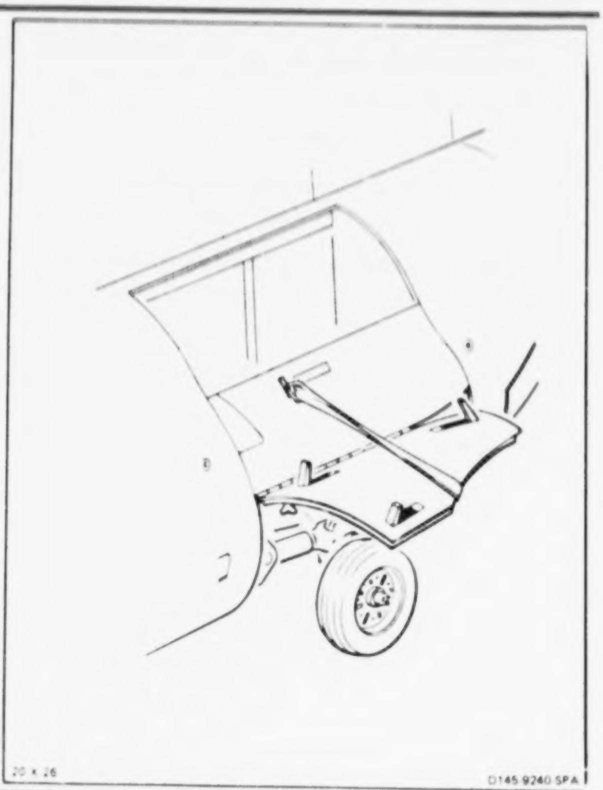
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Cloths (E120)
Dry Cleaning Solvent (E162)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

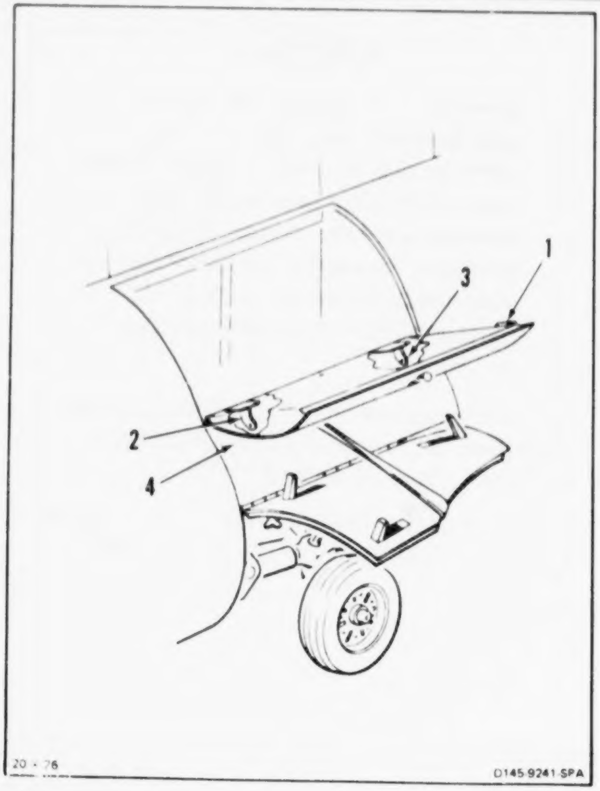
References:
TM 55-1520-240-23P



NOTE

Procedure is same to install right or left powerplant work platform. Left work platform shown here.

1. **Position engine work platform (1)** so that forward hinge (2) and aft hinge (3) align with holes in pod (4).
2. **Have helper support work platform (1).**



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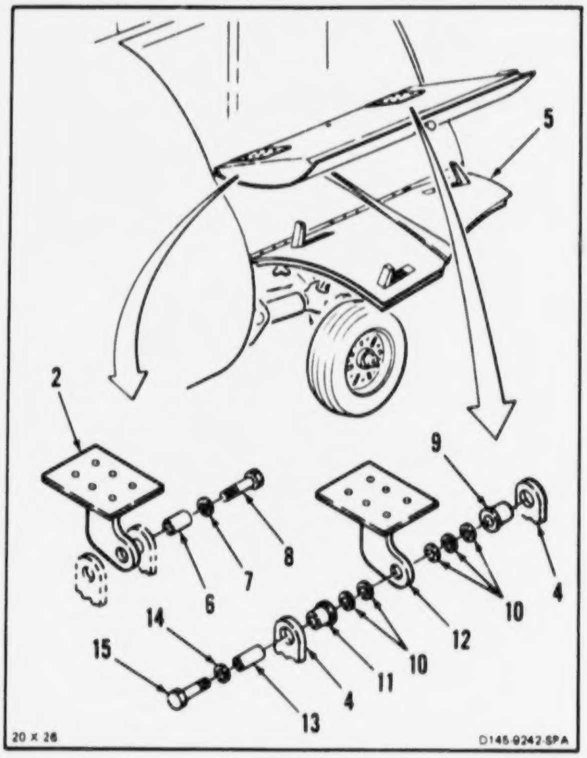
2-220 INSTALL ENGINE WORK PLATFORM (Continued) 2-220

3. **Working through access panel (5), install bushing (6), washer (7) and bolt (8)** in forward hinge (2).

NOTE

Five washers must be positioned on aft hinge as recorded in Task 2-219.

4. **Position bushing (9), five washers (10) and bushing (11)** between aft hinge (12) and pod (4). Install bushing (13).
5. **Install washer (14) and bolt (15)** in aft hinge (12).

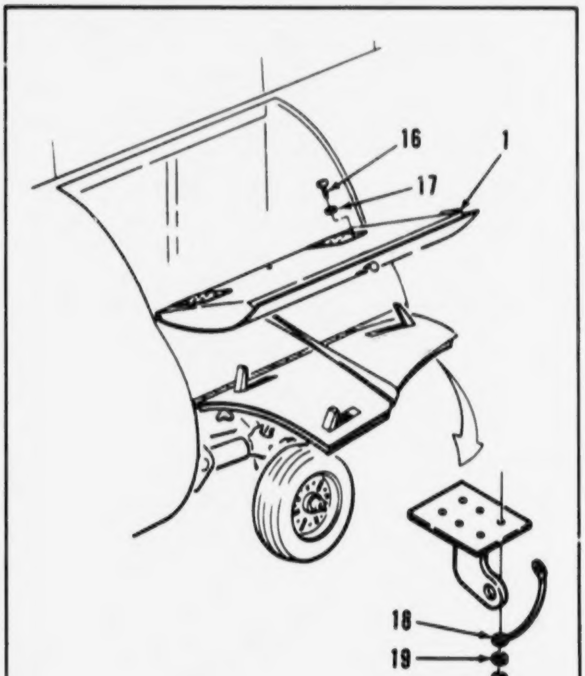


WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

6. **Wearing gloves (E186), clean bonding area** on work platform (1). Use cloths (E120) and dry cleaning solvent (E162).
7. **Install screw (16), washer (17), bonding jumper (18),** washer (19) and nut (20).

INSPECT



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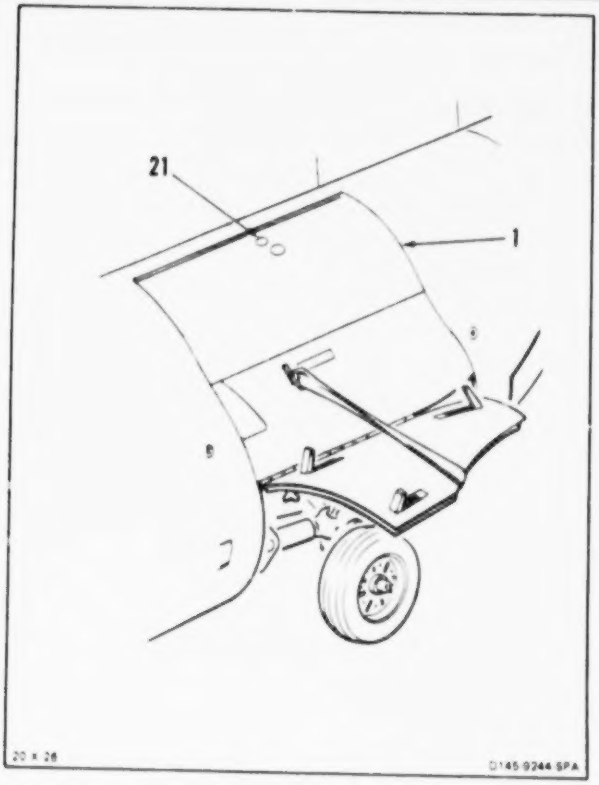
2-220 INSTALL ENGINE WORK PLATFORM (Continued) 2-220

8. **Close work platform (1). Press latch (21) to lock.**


21
1
20 × 26
D145 9244 SPA

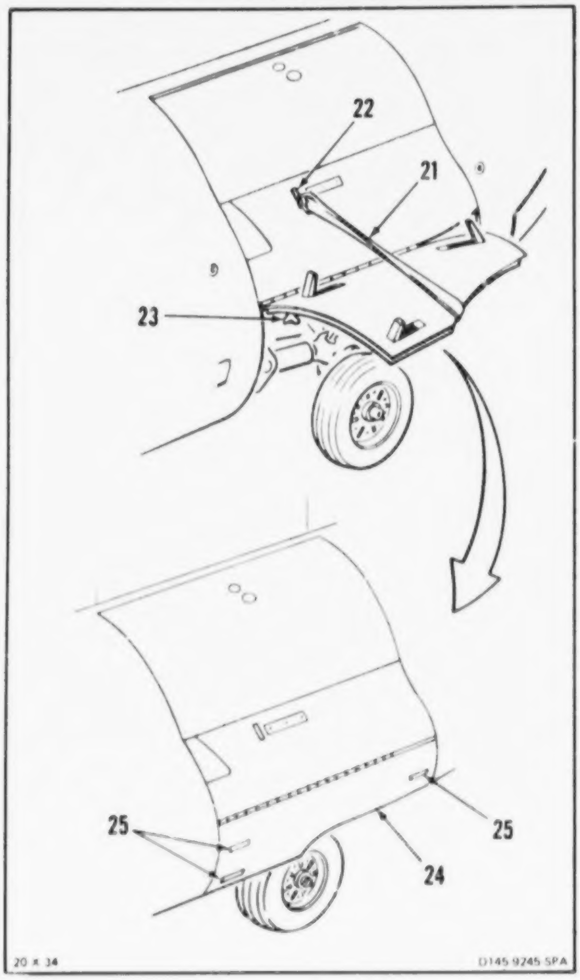
GO TO NEXT PAGE

2-220 INSTALL ENGINE WORK PLATFORM (Continued) 2-220

9. Remove securing strap (21) from slot (22).

10. **Install strap (21) on landing gear access panel.** Turn fastener (23).

11. **Close access panel (24).** Press three latches (25) to lock.


22
21
23
25
25
24
20 x 34
D145 9245 SPA

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-221 CLEAN TROOP SEATS 2-221

INITIAL SETUP

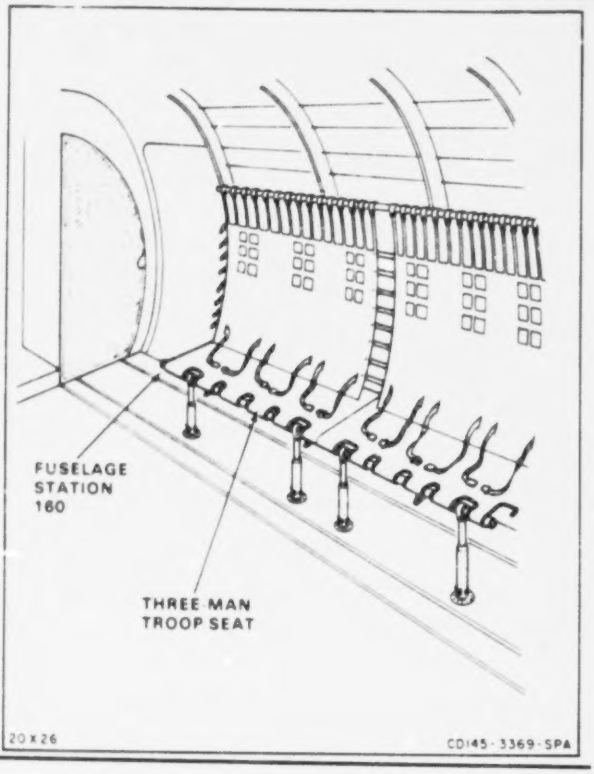
Applicable Configurations:
All

Tools:
Container, Two-Quart

Materials:
Brush (E85)
Cloths (E120)
Gloves (E186)
Dry Cleaning Solvent (E162)
Water
Goggles

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off



WARNING

Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

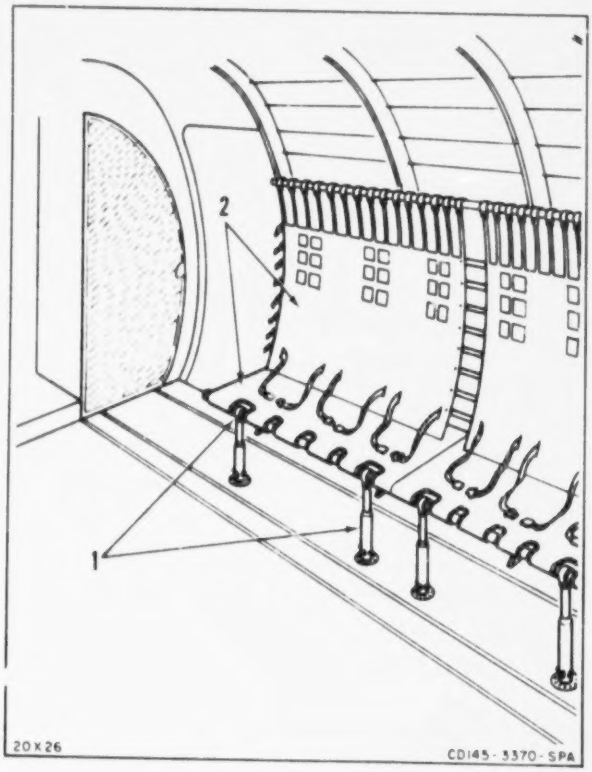
NOTE

Procedure is same for all troop seats. Three-man troop seat at station 160 is shown here.

1. **Clean metal parts (1)** using brush (E85) and dry cleaning solvent (E162). Wipe metal parts dry with cloths (E120). Wear goggles and gloves (E186).
2. **Clean nylon fabric (2)** using cleaning cloths (E120) damp with water. Wipe nylon fabric dry with cloths (E120).

FOLLOW-ON MAINTENANCE:
None

END OF TASK



2-222 UNSTOW ONE-MAN TROOP SEAT 2-222

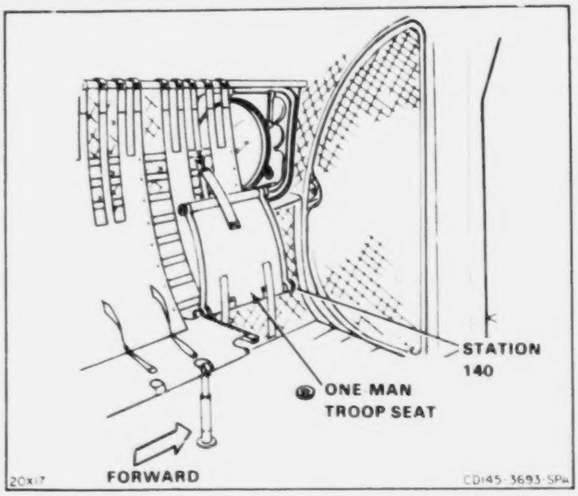
INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

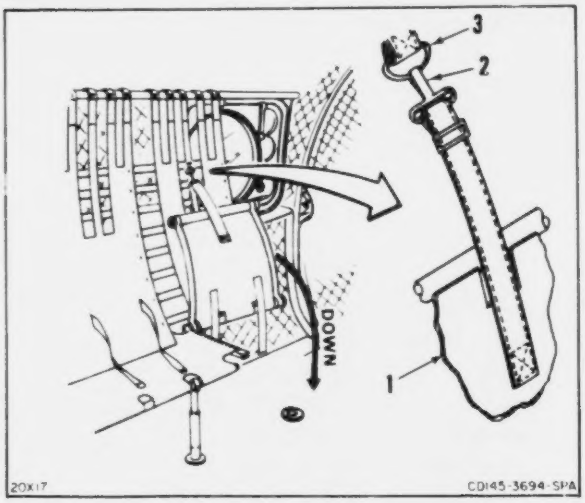
Personnel Required:
67U10 Medium Helicopter Repairer


STATION 140
ONE MAN TROOP SEAT
FORWARD
20x17
CDI45-3693-SPA

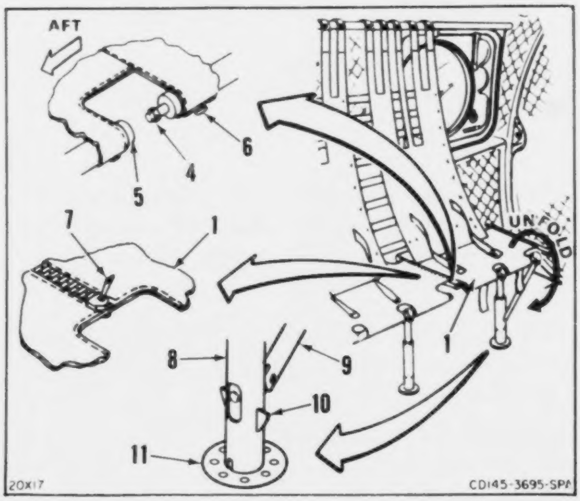
NOTE

- Troop seat at station 140 is shown here.
- If troop seat was stowed as an assembly, do not do steps 2 and 3.

1. Hold seat (1) and **remove hook (2) from D-ring (3).** Swing seat down.


3
2
DOWN
1
20x17
CDI45-3694-SPA

2. **Install housing (4) in latch (5)** and slide lock (6) aft.
3. **Close slide fastener (zipper) (7)** on seat (1).
4. Unfold leg (8) and brace (9) from seat (1). Push in two locks (10) and **connect leg to adapter (11).**


AFT
6
4
5
7
1
UNFOLD
1
8
9
10
11
20x17
CDI45-3695-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-223 INSTALL ONE-MAN TROOP SEAT 2-223

INITIAL SETUP

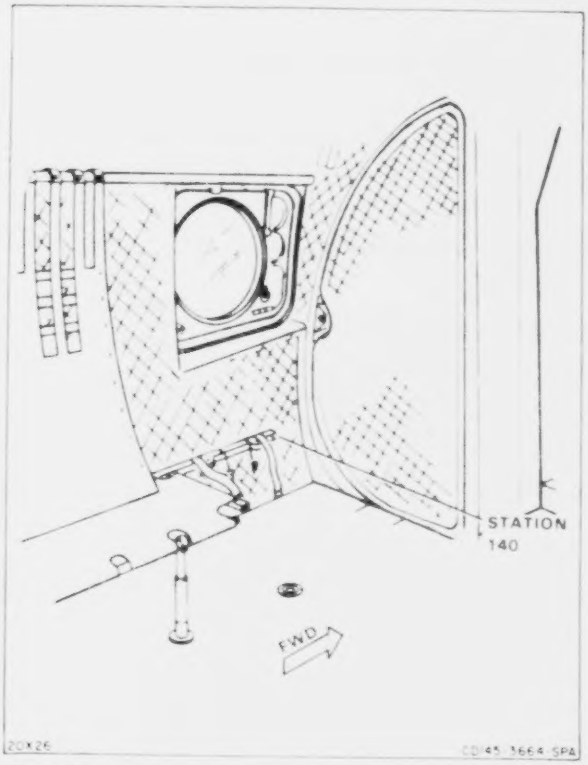
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

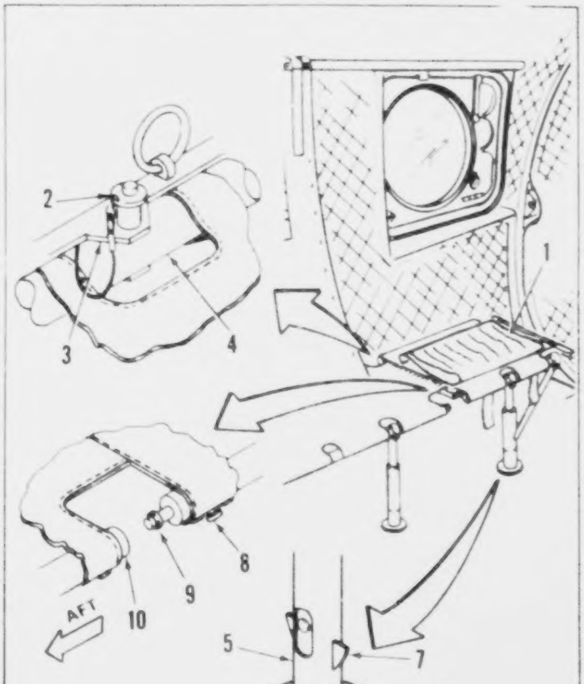
References:
TM 55-1520-240-23P


STATION 140
FWD
20X26
CDI45-3664-SPA

NOTE

Troop seat at station 140 is shown here

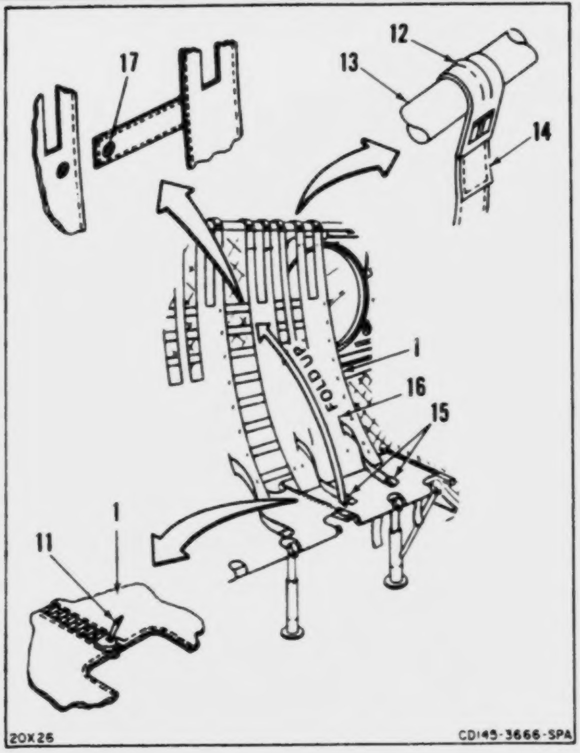
1. **Position troop seat (1)** at station 140
2. Hold seat (1) and **install two pins (2)** through bracket (3) and tube (4)
3. Position leg (5) in adapter (6). Push in two locks (7) and **install leg.**
4. **Slide lock (8) aft** and **install housing (9) in latch (10).**


1
2
3
4
5
6
7
8
9
10
AFT
20X26
CDI45-3665-SPA

GO TO NEXT PAGE

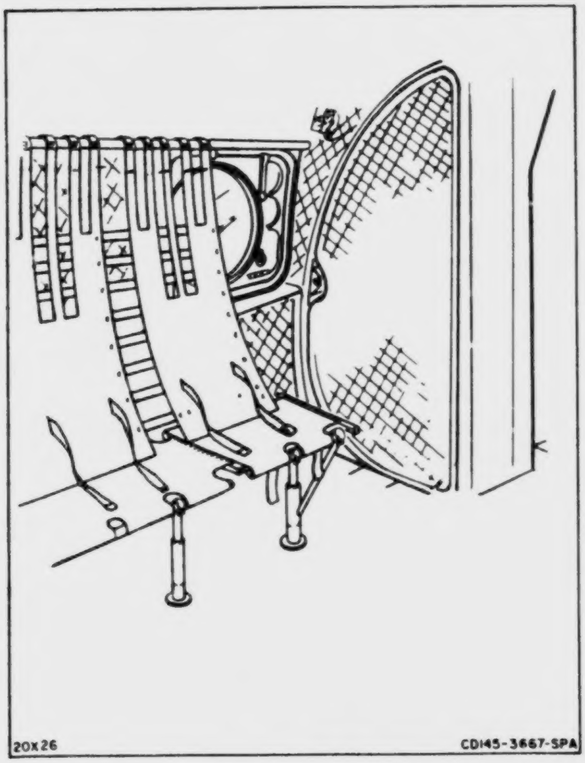
2-223 INSTALL ONE-MAN TROOP SEAT (Continued) 2-223

5. **Close slide fastener (zipper) (11)** on seat (1).
6. **Unfold back of seat (1) and install five hooks (12)** on tube (13). Pull down on straps (14) to put tension on seat.
7. **Route seat belt (15)** through slits (16) in seat (1).
8. **Connect eight fasteners (17).**


17
12
13
14
FOLD UP
1
16
15
1
11
20X26
CD145-3666-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
CD145-3667-SPA

END OF TASK

2-224 REMOVE ONE-MAN TROOP SEAT 2-224

INITIAL SETUP

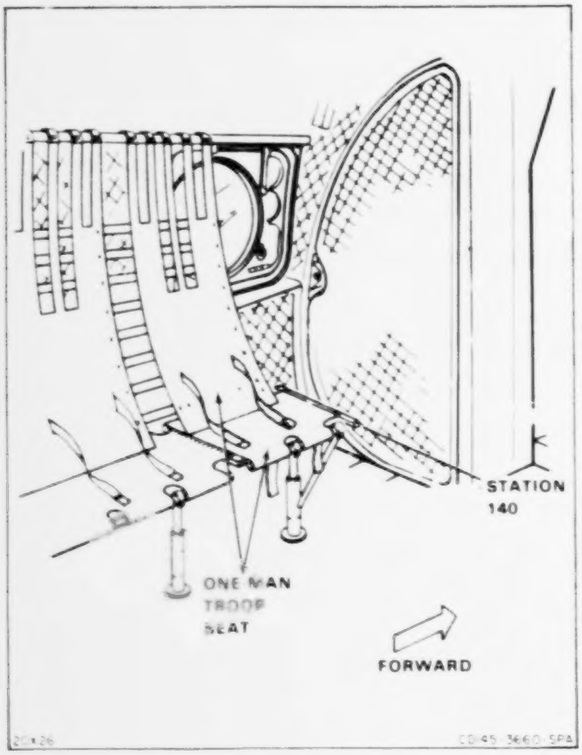
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

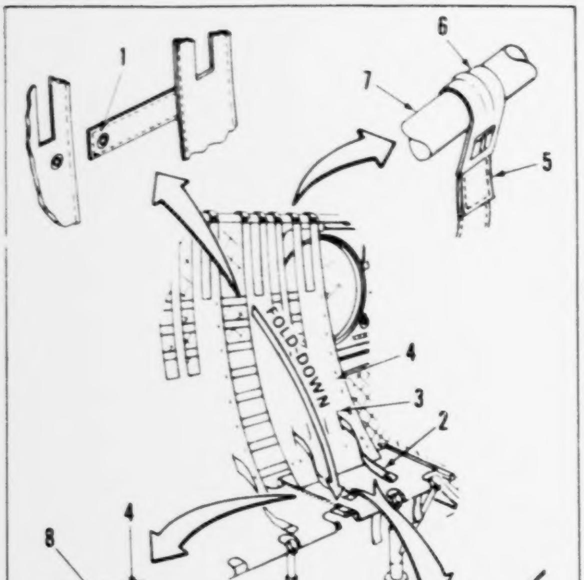
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


STATION 140
ONE MAN TROOP SEAT
FORWARD
20X26
CD145-3660-SPA

NOTE

Troop seat at station 140 is shown here.

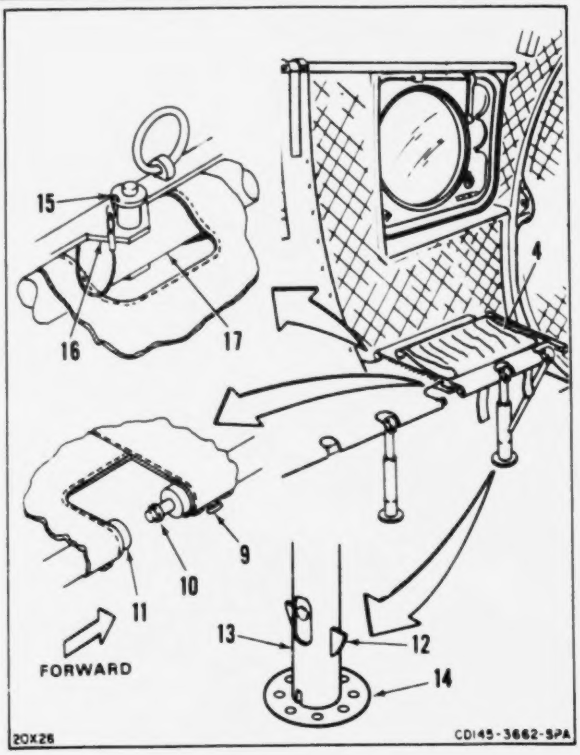
1. **Disconnect eight fasteners (1).**
2. **Remove seat belt (2)** through slits (3) in seat (4).
3. Loosen straps (5) and **remove five hooks (6)** from tube (7). **Fold down back of seat (4).**
4. **Open slide fastener (zipper) (8)** on seat (4).


1
6
7
5
FOLD-DOWN
4
3
2
4
8
2
20X26
CD145-3661-SPA

GO TO NEXT PAGE

2-224 REMOVE ONE-MAN TROOP SEAT (Continued) 2-224

5. Slide lock (9) forward and **remove housing (10)** from latch (11).
6. **Push in two locks (12) and remove leg (13)** from adapter (14).
7. **Hold seat (4) and remove two pins (15)** from brackets (16) and tube (17).
8. **Remove seat (4).**


15
16
17
4
9
10
11
13
12
14
FORWARD
20X26
CD145-3662-SPA

20X26
CD145-3663-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-225 DISASSEMBLE ONE-MAN TROOP SEAT 2-225

INITIAL SETUP

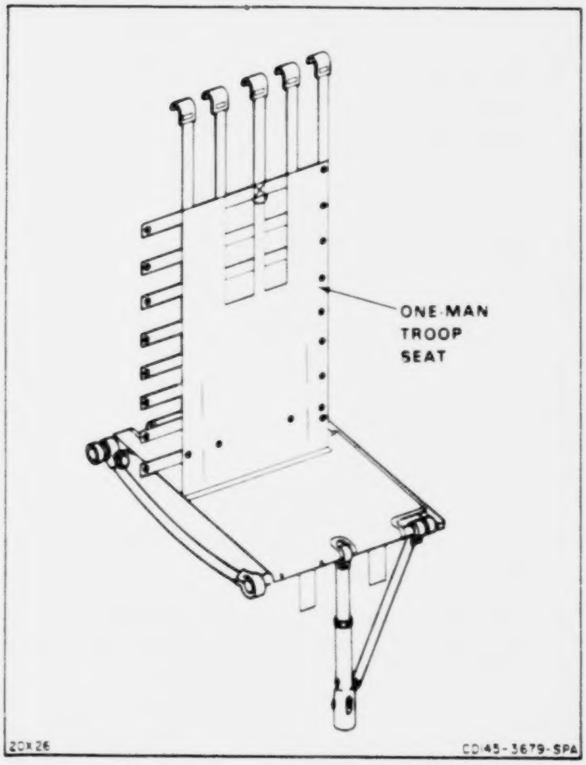
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

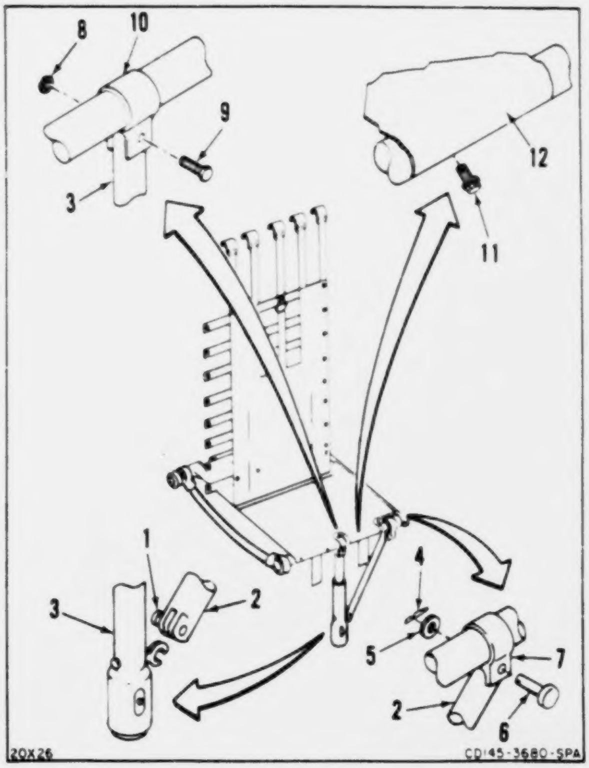
Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


ONE-MAN
TROOP
SEAT
20X26
CD145-3679-SPA

---

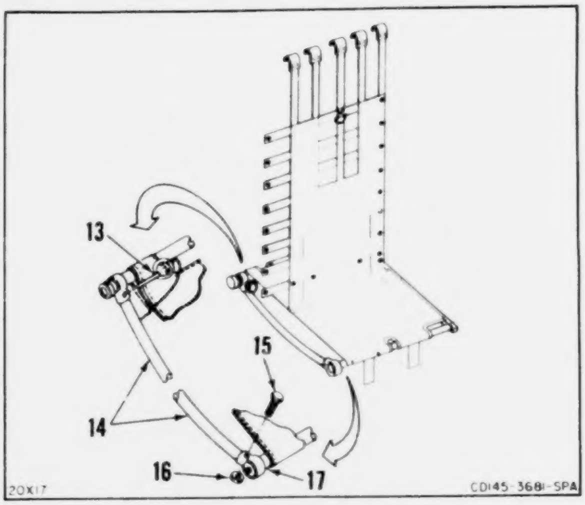
1. Push lock (1) and **disconnect brace (2)** from leg (3).
2. Remove cotter pin (4), washer (5), and pin (6) from brace fitting (7). **Remove brace (2).**
3. Remove nut (8) and bolt (9) from leg fitting (10). **Remove leg (3).**
4. **Remove nine screws (11)** from front of seat (12).


8
10
9
3
12
11
1
2
3
4
5
7
2
6
20X26
CD145-3680-SPA

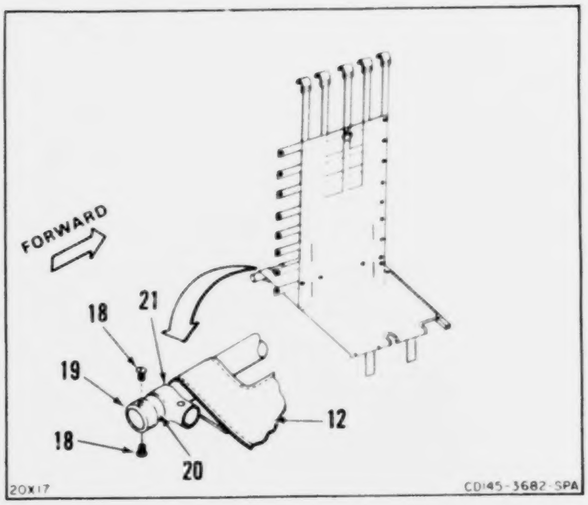
GO TO NEXT PAGE

2-225 DISASSEMBLE ONE-MAN TROOP SEAT (Continued) 2-225

5. **Remove two pins (13)** from spreaders (14).
6. **Remove two bolts (15)** and nuts (16) from spreaders (14). **Remove spreaders and front tube (17).**

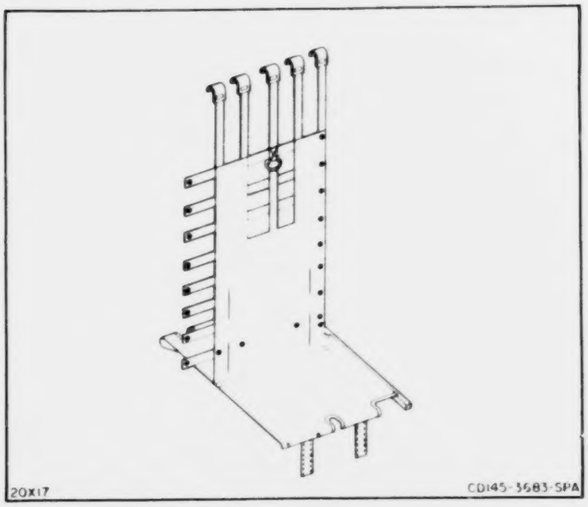

13
15
14
16
17
20X17
CD145-3681-SPA

7. Remove two screws (18) from collar (19). **Remove collar.**
8. Slide rear tube (20) forward and **remove two fittings (21) and tube** from seat (12).


FORWARD
18
21
19
12
18
20
20X17
CD145-3682-SPA

FOLLOW-ON MAINTENANCE:

None


20X17
CD145-3683-SPA

END OF TASK

2-226 ASSEMBLE ONE-MAN TROOP SEAT 2-226

INITIAL SETUP

Applicable Configurations:
All

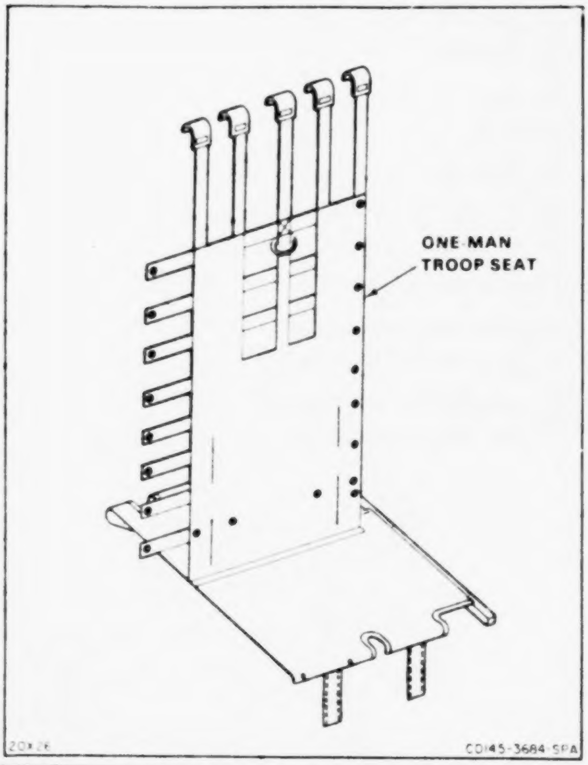
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

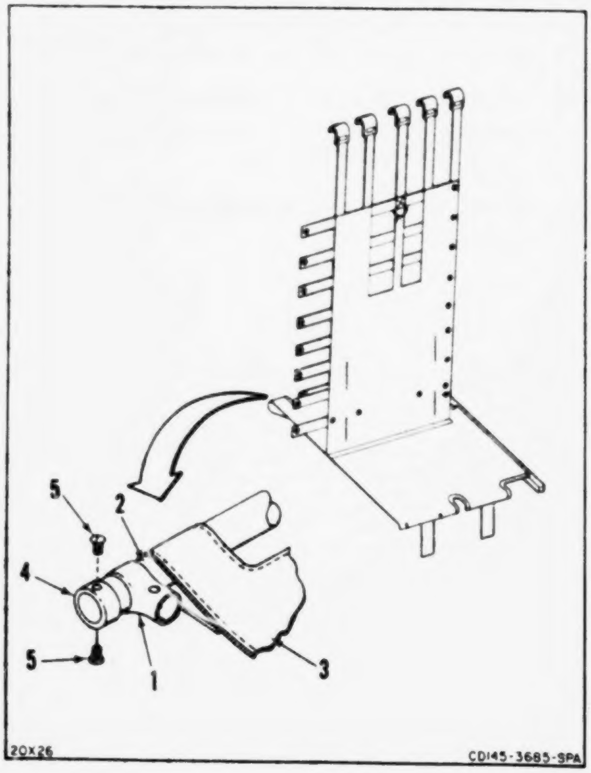
Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P


ONE-MAN
TROOP SEAT
20X26
CD145-3684-SPA

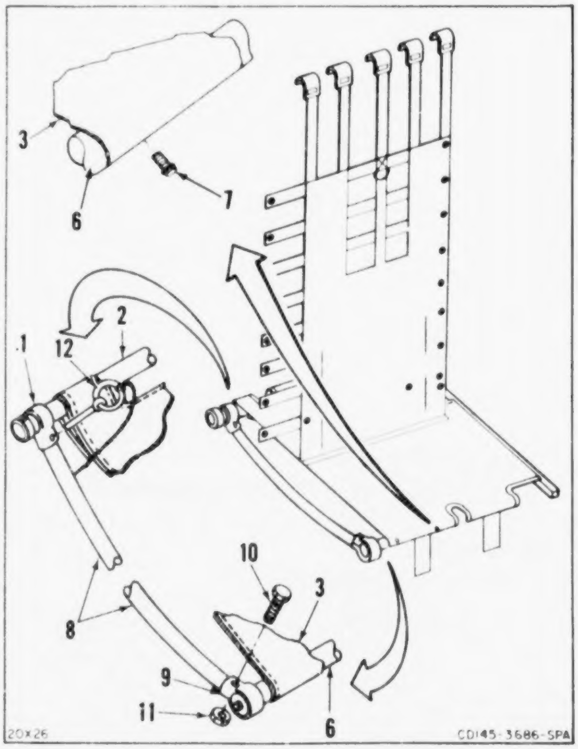
1. **Position two fittings (1) and rear tube (2)** in seat (3).
2. **Position collar (4)** on rear tube (2) and **install two screws (5).**


5
2
4
5
1
3
20X26
CD145-3685-SPA

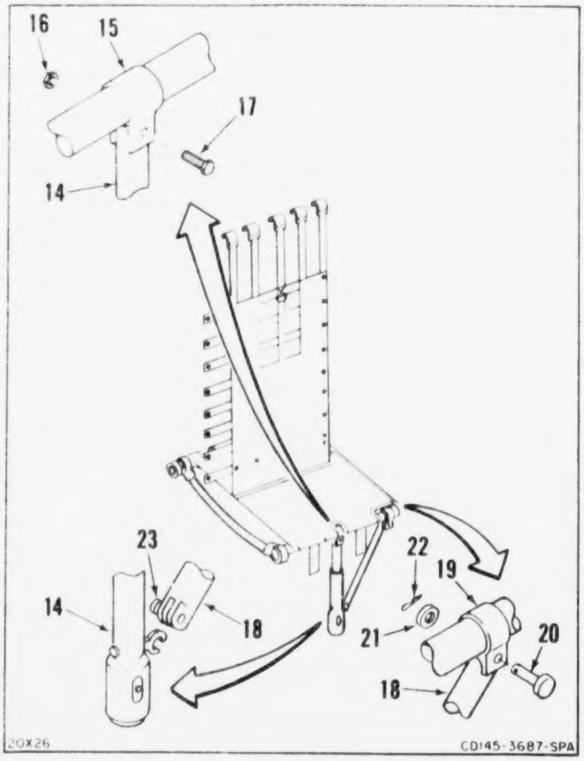
GO TO NEXT PAGE

2-226 ASSEMBLE ONE-MAN TROOP SEAT (Continued) 2-226

3. **Position front tube (6)** on seat (3).
4. **Install nine screws (7)** in seat (3) and front tube (6).
5. **Position two spreaders (8) in fittings (9)** on both ends of front tube (6).
6. **Install two bolts (10)** and nuts (11) through spreaders (8) and fittings (9).
7. **Position two spreaders (8) in fittings (1)** on both ends of rear tube (2).
8. **Install two pins (12)** through fittings (1) and spreaders (8).


3
7
6
2
1
12
10
3
8
9
11
6
20X26
CD145-3686-SPA

9. **Position leg (14) in fitting (15). Install** nut (16) and **bolt (17)** through leg and fitting.
10. **Position brace (18) in fitting (19). Install pin (20),** washer (21), and cotter pin (22) through fitting and brace.
11. Push lock (23) and **connect brace (18) to leg (14).**


16
15
17
14
23
22
19
14
18
21
20
18
20X26
CD145-3687-SPA

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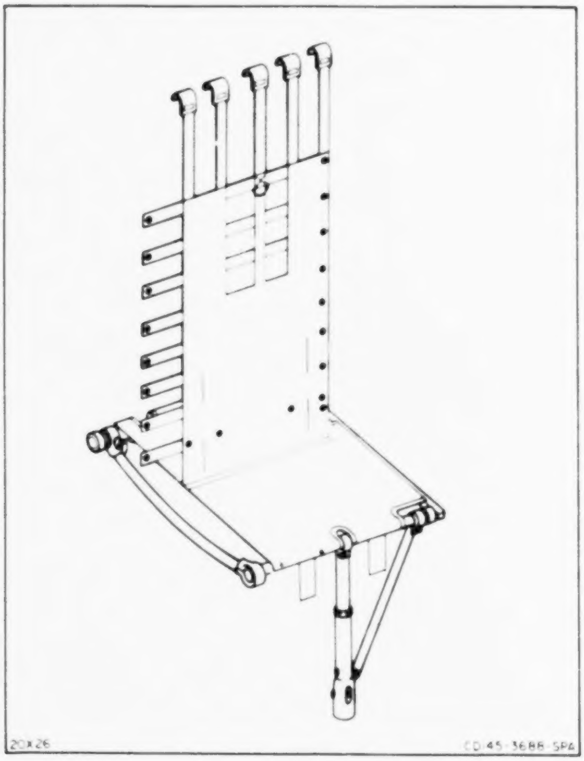
2-226 ASSEMBLE ONE-MAN TROOP SEAT (Continued) 2-226

FOLLOW-ON MAINTENANCE:

None


20X26
CD-45-3688-SPA

END OF TASK

2-227 STOW ONE-MAN TROOP SEAT 2-227

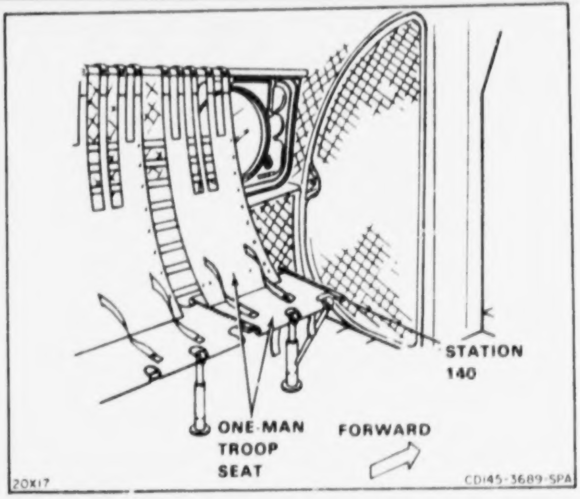
INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

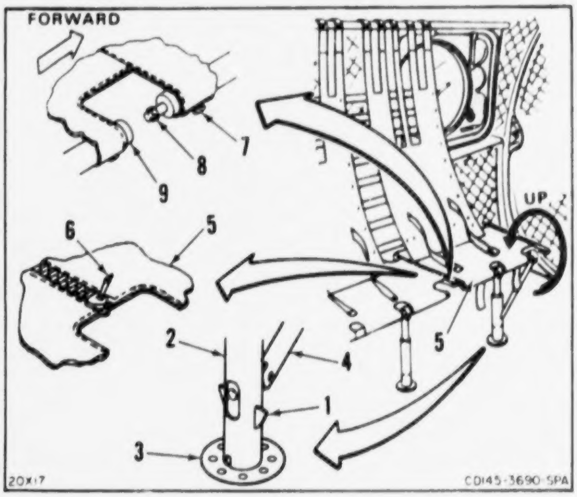
Personnel Required:
67U10 Medium Helicopter Repairer


STATION
140
ONE-MAN
TROOP
SEAT
FORWARD
20X17
CD145-3689-SPA

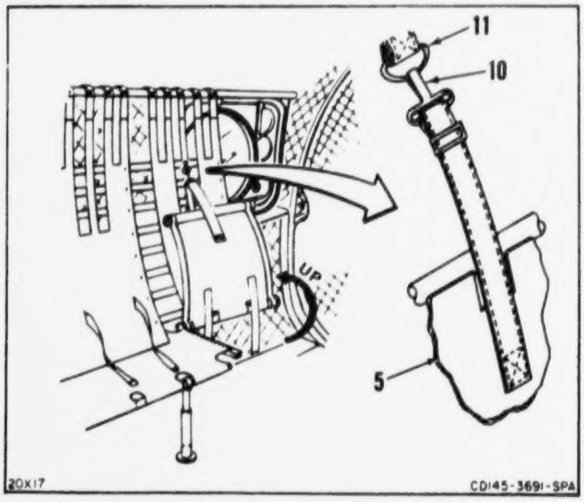
NOTE

- Troop seat at station 140 is shown here.
- If troop seat is to be stowed as an assembly, do not do steps 2 and 3.

1. Push in two locks (1) and remove leg (2) from adapter (3). **Swing leg and brace (4) up on seat (5).**
2. **Open slide fastener (zipper) (6)** on seat (5).
3. Slide lock (7) forward and **remove housing (8) from latch (9).**


FORWARD
7
8
9
6
5
UP
2
4
5
1
3
20X17
CD145-3690-SPA

4. **Raise seat (5) and install hook (10)** on D-ring (11).


11
10
UP
5
20X17
CD145-3691-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-228 UNSTOW THREE-MAN TROOP SEATS 2-228

INITIAL SETUP

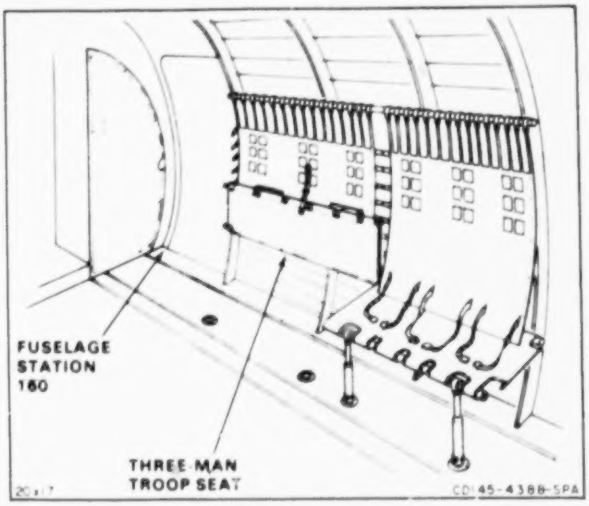
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

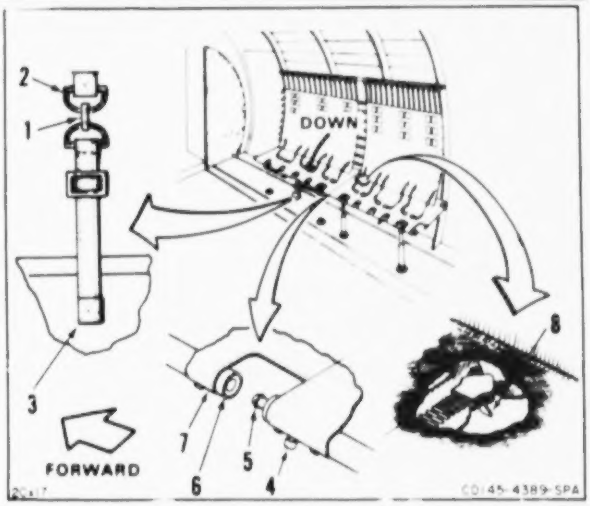
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


FUSELAGE STATION 160
THREE-MAN TROOP SEAT
20x17
CD145-4388-SPA

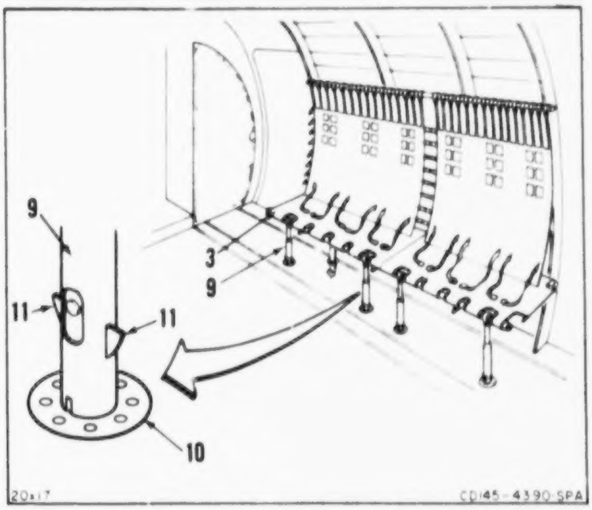
NOTE

Procedure is same to unstow all 10 three-man troop seats

1. **Unhook strap hook (1)** from D-ring (2) **and swing seat (3) down.**
2. Slide lock button (4) forward and **install housing (5) into latch (6)** of tube (7).
3. **Close slide fastener (zipper) (8)** connecting seat (3) to adjoining seat.


2
1
DOWN
8
3
FORWARD
7
6
5
4
20x17
CD145-4389-SPA

4. **Swing two legs (9) down** from seats (3).
5. Position two legs (9) on adapters (10). Push in four locks (11) and **install two legs.**


9
3
9
11
11
10
20x17
CD145-4390-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-229 INSTALL THREE-MAN TROOP SEAT 2-229

INITIAL SETUP

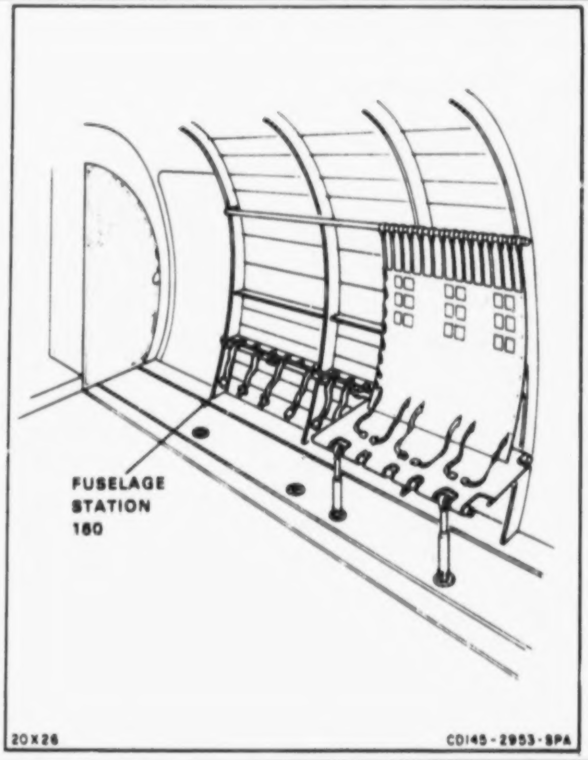
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U20 Medium Helicopter Repairer

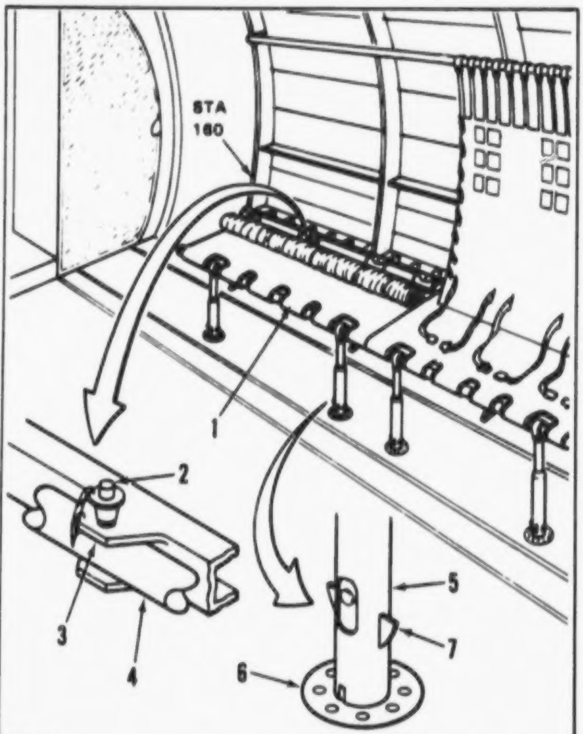
References:
TM 55-1520-240-23P


FUSELAGE
STATION
160
20X26
CD145-2953-SPA

NOTE

Troop seat at station 160 is shown here.

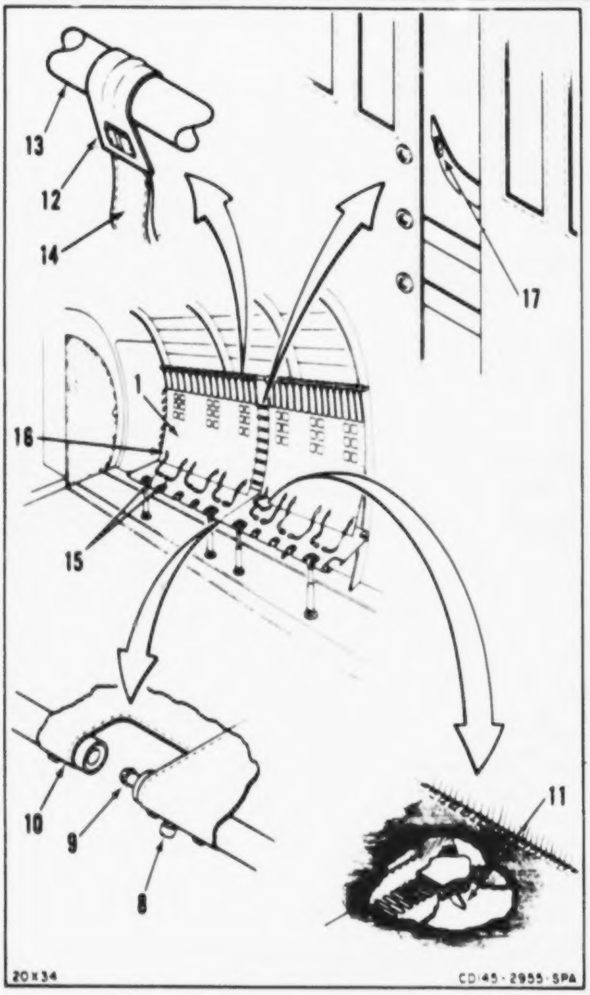
1. Position troop seat (1) at station 160.
2. **Hold seat (1) and install four pins (2)** through bracket (3) and lower back tube (4).
3. Position two legs (5) on adapters (6) Push in four locks (7) and **install two legs.**

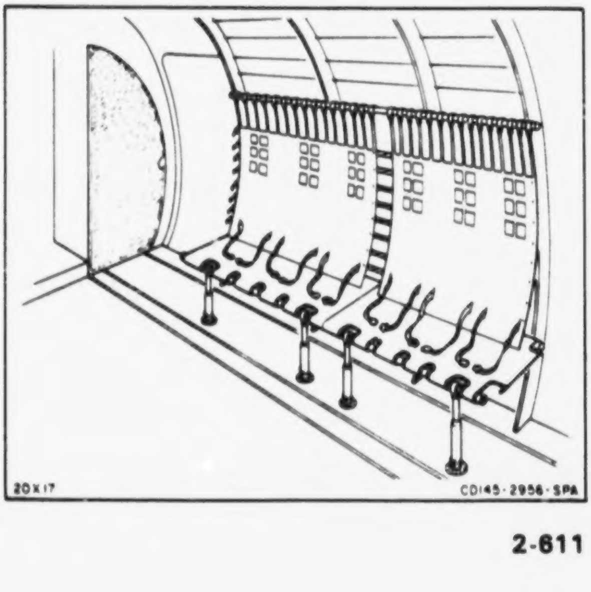

STA
160
1
2
3
4
5
6
7
20X26
CD145-2954-SPA

GO TO NEXT PAGE

2-229 INSTALL THREE-MAN TROOP SEAT (Continued) 2-229

4. **Slide button (8) forward** and **install housing (9)** in latch (10).
5. **Unroll back of seat (1)** and **install 15 hooks (12)** on tube (13). Pull down on strap (14) to put tension on seat.
6. Close slide fastener (zipper) (11) at aft end of seat (1).
7. **Route three seat belts (15)** through slits (16) in seat (1).
8. **Connect eight fasteners (17).**


13
12
14
17
1
16
15
10
9
8
11
20X34
CD145-2955-SPA


20X17
CD145-2956-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-230 REMOVE THREE-MAN TROOP SEAT 2-230

INITIAL SETUP

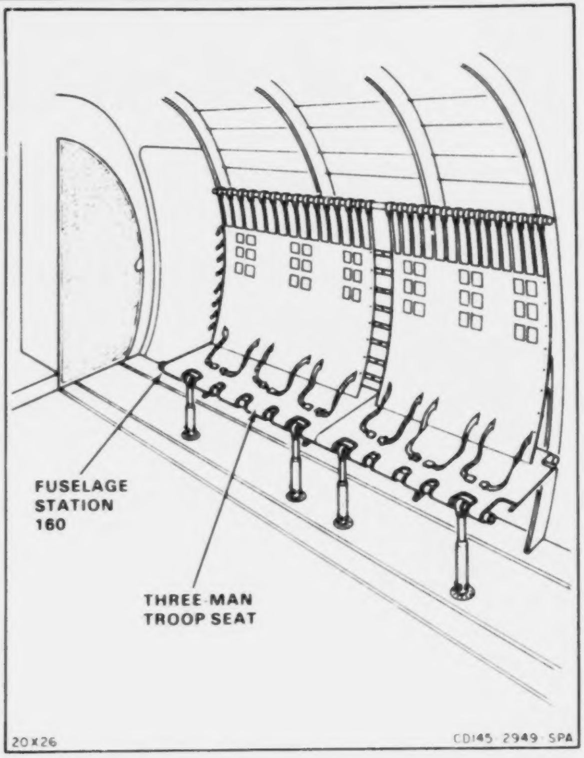
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

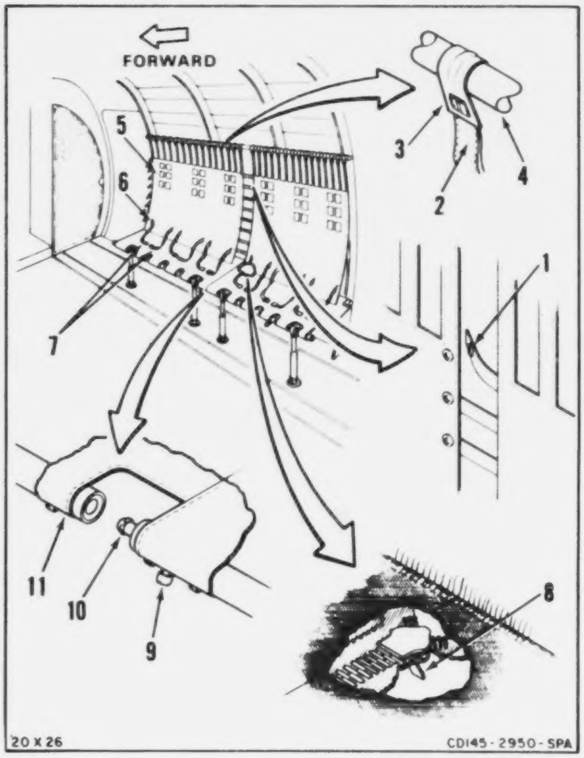
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


FUSELAGE STATION 160
THREE-MAN TROOP SEAT
20X26
CD145-2949-SPA

NOTE

Troop seat at station 160 is shown here.

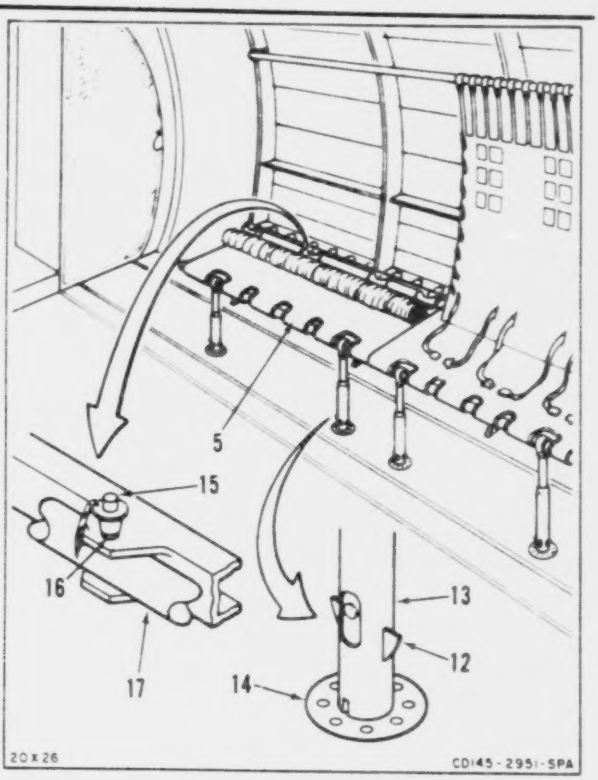
1. **Disconnect eight fasteners (1).**
2. Loosen straps (2) and **remove 15 hooks (3)** from tube (4). Roll down back of seat (5).
3. **Remove three seat belts (6)** through slits (7) in seats (5).
4. **Open slide fastener (zipper) (8)** at aft end of seat (5).
5. **Slide button (9) aft** and **remove housing (10)** from latch (11).


FORWARD
5
6
3
4
2
1
7
11
10
9
8
20X26
CD145-2950-SPA

GO TO NEXT PAGE

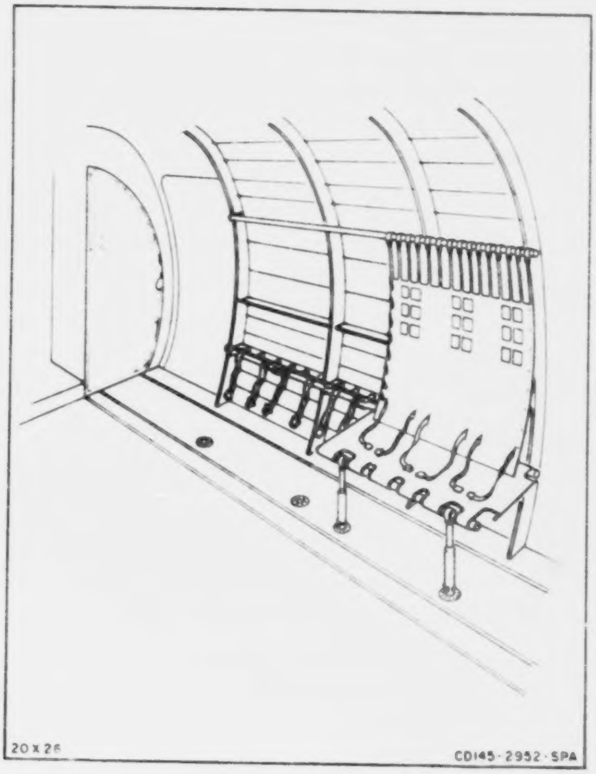
2-230 REMOVE THREE-MAN TROOP SEAT (Continued) 2-230

6. **Push in four locks (12)** and **remove two legs (13)** from adapters (14).
7. **Hold seat (5)** and **remove four pins (15)** from bracket (16) and lower back tube (17).
8. **Remove seat (5).**


5
15
16
17
13
12
14
20 x 26
CD145-2951-SPA

FOLLOW-ON MAINTENANCE:

None


20 x 26
CD145-2952-SPA

END OF TASK

2-231 DISASSEMBLE THREE-MAN TROOP SEAT 2-231

INITIAL SETUP

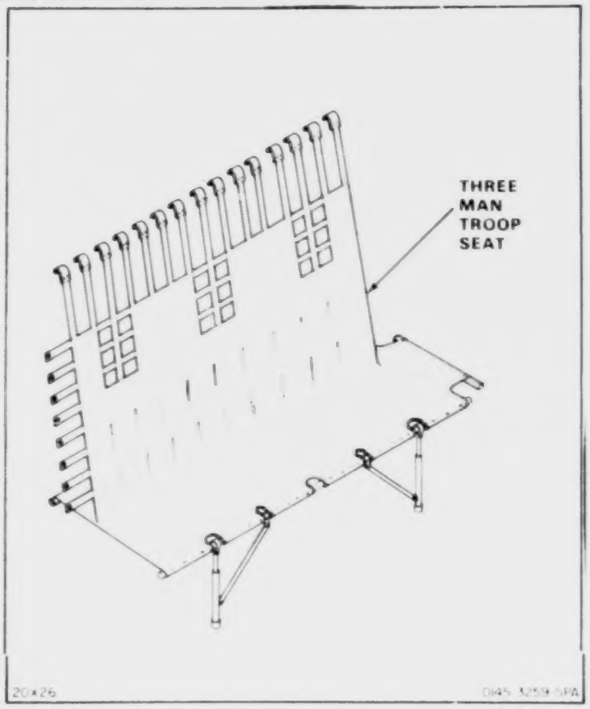
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task

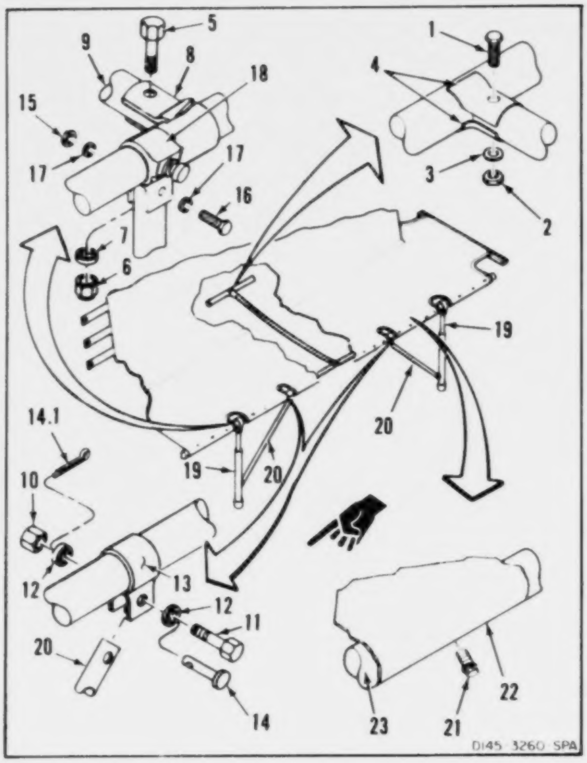

THREE MAN TROOP SEAT
20X26
DI45 3259 SPA

1. Remove three bolts (1), nuts (2), and washers (3) from three rear brace fittings (4). **Remove fittings.**
2. Remove three bolts (5), nuts (6), and washers (7) from three front brace fittings (8). **Disconnect three spreaders (9).**

NOTE

On some troop seats, bolts and nuts have been replaced with pins and cotter pins.

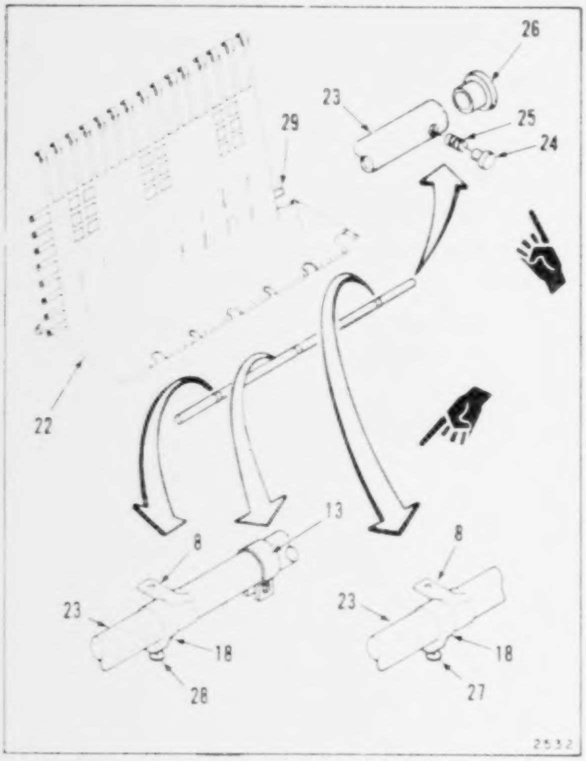
3. If installed, remove nuts (10), bolts (11) and washers (12) from two leg brace fittings (13).
4. If installed, remove pins (14), cotter pins (14.1) and washers (12) from two leg brace fittings (13).
5. Remove two nuts (15), bolts (16), and four washers (17) from two leg fittings (18). **Remove legs (19) and braces (20).**
6. Remove 26 screws (21) from seat (22). **Remove front tube (23).**


5
9
8
18
1
4
15
17
17
17
16
3
2
7
6
19
20
14.1
19
20
10
12
13
12
11
20
14
23
21
22
DI45 3260 SPA

GO TO NEXT PAGE

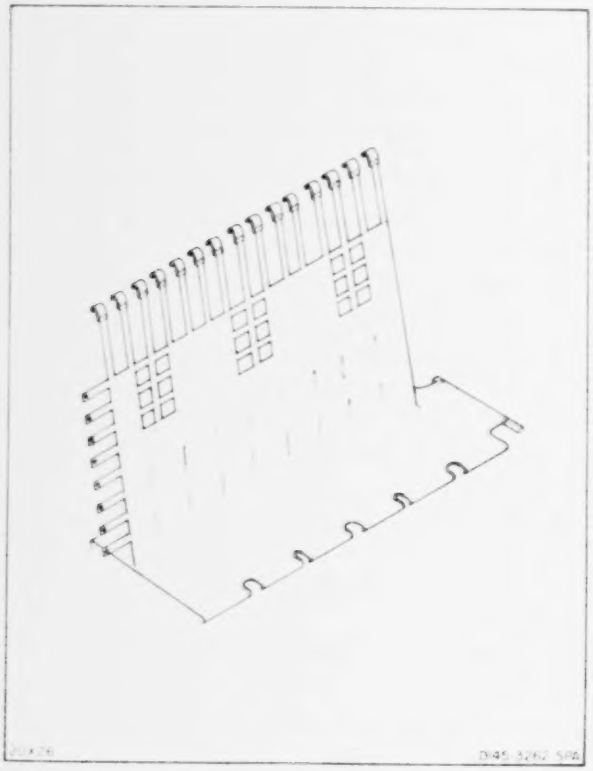
2-231 DISASSEMBLE THREE-MAN TROOP SEAT (Continued) 2-231

7. **Remove plunger (24), spring (25), and latch (26)** from aft end of front tube (23).
8. **Pull out aft leg fitting button (27) and slide aft leg fitting (18)** off tube (23).
9. Slide three front brace fittings (8) and two leg brace fittings (13) off tube (23).
10. **Pull out leg fitting button (28) and slide leg fitting (18) aft** off tube (23).
11. **Slide rear tube (29) off seat (22).**



FOLLOW-ON MAINTENANCE

None



END OF TASK

2-232 ASSEMBLE THREE-MAN TROOP SEAT 2-232

INITIAL SETUP

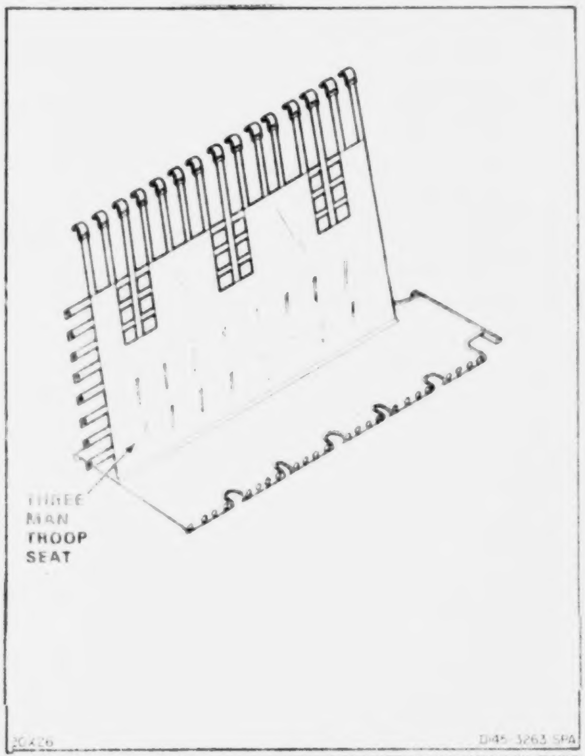
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

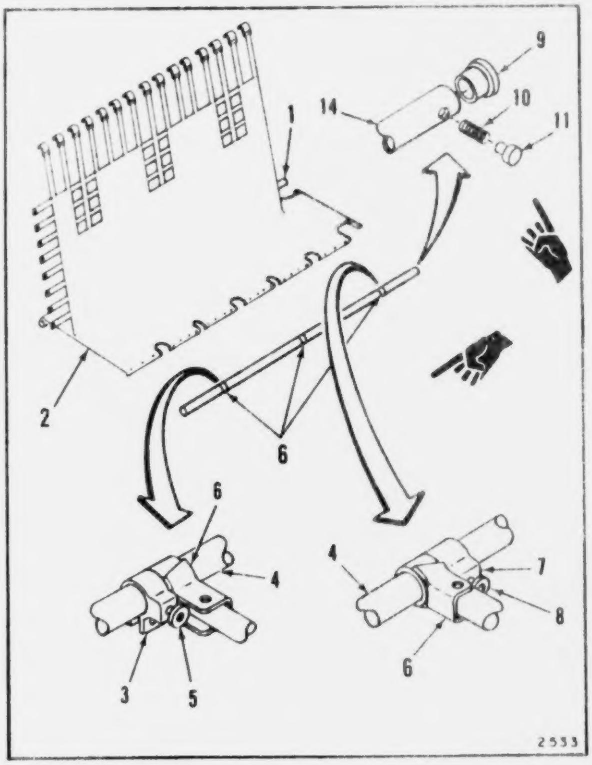
References:
TM 55-1520-240-23P



CAUTION

Do not overtighten nuts. Damage to tubes can result.

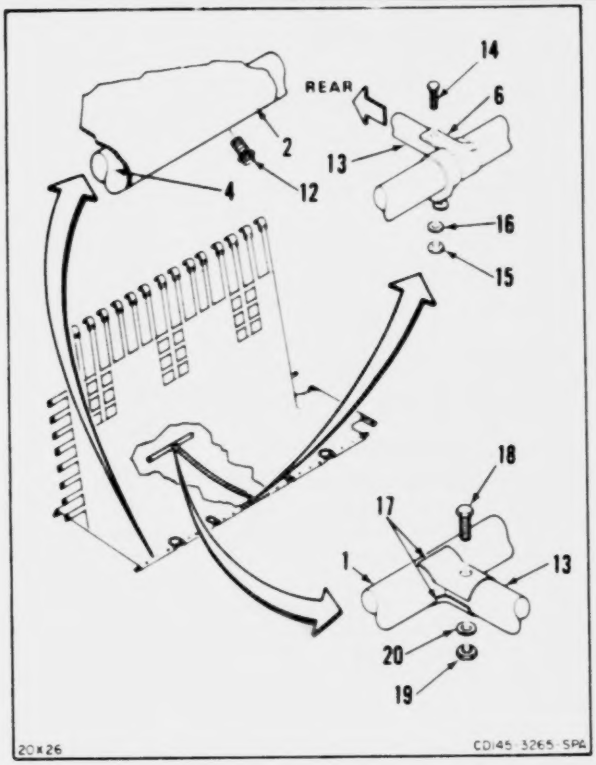
1. **Slide rear tube (1) into seat (2).**
2. **Position forward leg fitting (3)** on aft end of front tube (4). Pull leg fitting button (5) and slide fitting on tube to second hole. Release button.
3. **Position three front brace fittings (6) and two leg brace fittings (6.1)** on aft end frontof tube (4). Slide fittings forward on tube. Open end of fittings should face away from tube (1).
4. **Position aft leg fitting (7)** on aft end of front tube (4). Pull leg fitting button (8) and slide fitting on tube to first hole. Release button.
5. Install spring (10) in latch (9).
6. Depress spring (10) and position latch (9) so that slot in front tube (4) aligns with plunger (11).
7. Slide latch (9) into front tube (4).



GO TO NEXT PAGE

2-232 ASSEMBLE THREE-MAN TROOP SEAT (Continued) 2-232

8. **Position tube (4)** on front of seat (2). **Install 26 screws (12).**
9. **Position three spreader tubes (13)** in front brace fittings (6). **Install three bolts (14),** nuts (15), and washers (16).
10. **Position six rear brace fittings (17)** on ends of spreader tubes (13) and rear tube (1). **Install three bolts (18),** nuts (19), and washers (20) through fittings and tube.


14
REAR
6
2
13
12
4
16
15
18
17
1
13
20
19
20x26
CD145-3265-SPA

11. **Position leg (21)** in aft leg fitting (7). **Install bolt (22),** nut (23), and two washers (24) in fitting.

NOTE

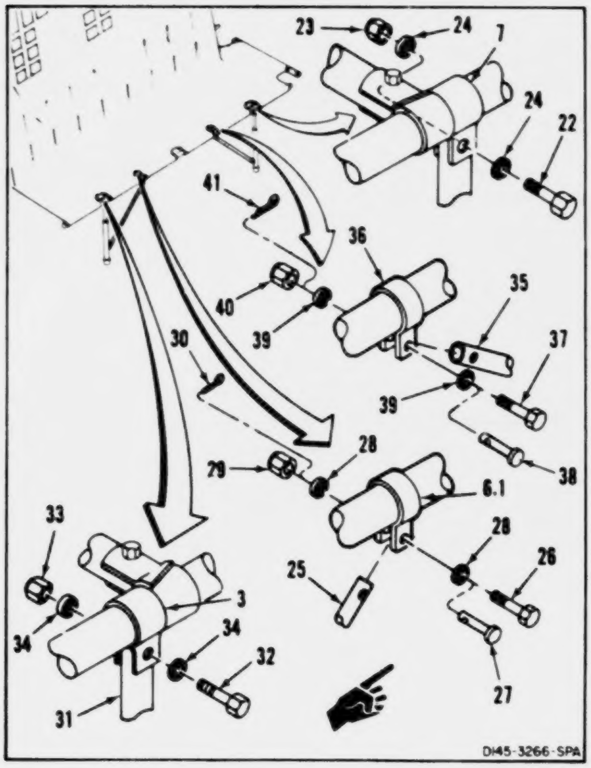
On some troop seats, bolt and nut have been replaced with pin and cotter pin.

12. **Position leg brace (25)** in fitting (6.1). **Install bolt (26) or pin (27),** two washers (28), and nut (29) or cotter pin (30) in fitting.
13. **Position leg (31)** in forward leg fitting (3). **Install bolt (32),** nut (33), and two washers (34) in fitting.

NOTE

On some troop seats, bolt and nut have been replaced with pin and cotter pin.

14. **Position leg brace (35)** in fitting (36). **Install bolt (37) or pin (38),** two washers (39), and nut (40) or cotter pin (41) in fitting.


23
24
7
24
22
41
36
35
40
39
30
39
37
39
38
28
29
6.1
33
28
26
25
3
34
34
32
27
31
D145-3266-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-233 STOW THREE-MAN TROOP SEAT 2-233

INITIAL SETUP

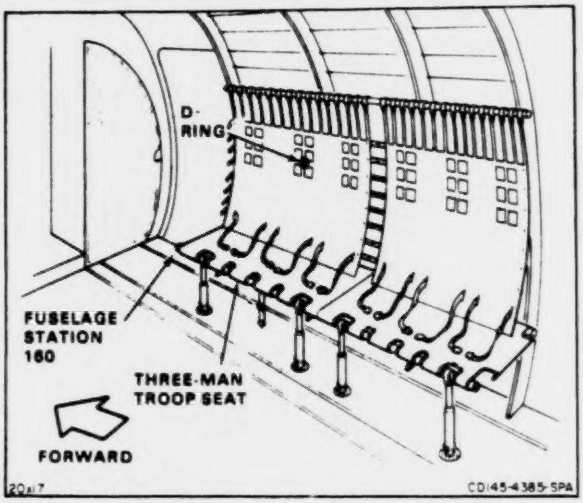
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

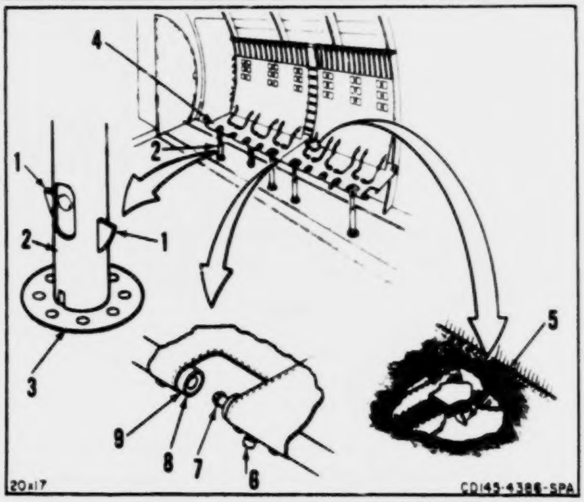
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


D-RING
FUSELAGE STATION 160
THREE-MAN TROOP SEAT
FORWARD
20x17
CD145-4385-SPA

NOTE

Seat at station 160 is shown here.

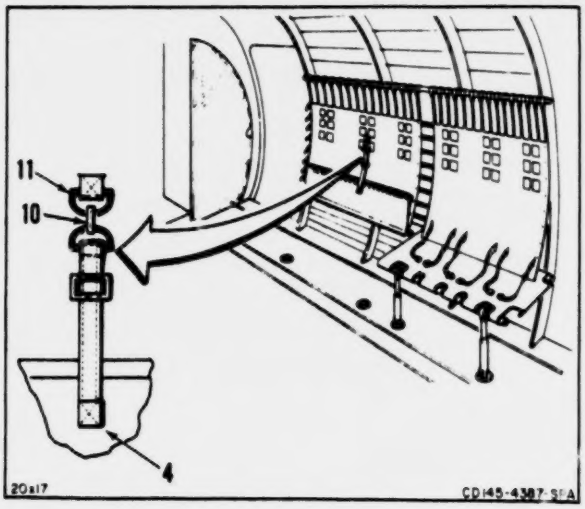
1. Push in four locks (1) and **disconnect two legs (2)** from floor adapters (3).
2. **Swing legs (2)** up onto seats (4).
3. Open slide fastener (zipper) (5) connecting seat (4) to adjoining seat.
4. Slide lock button (6) aft **and remove housing (7) from latch (8)** in tube (9).


4
2
1
2
1
3
5
9
8
7
6
20x17
CD145-4386-SPA

5. **Raise seat (4) and hook strap hook (10)** to D-ring (11).

FOLLOW-ON MAINTENANCE:

None


11
10
4
20x17
CD145-4387-SPA

END OF TASK

2-234 REMOVE SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE 2-234

INITIAL SETUP

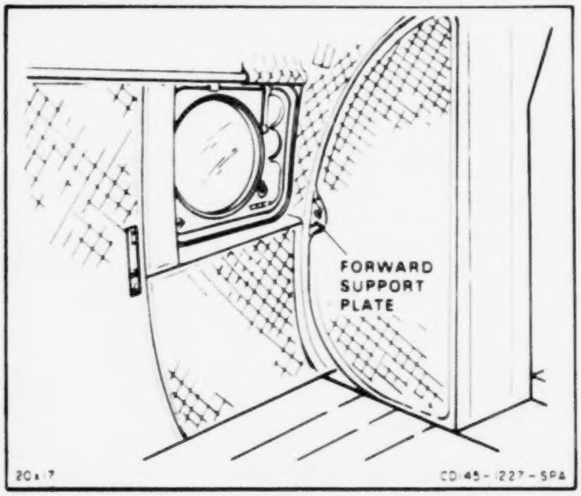
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off

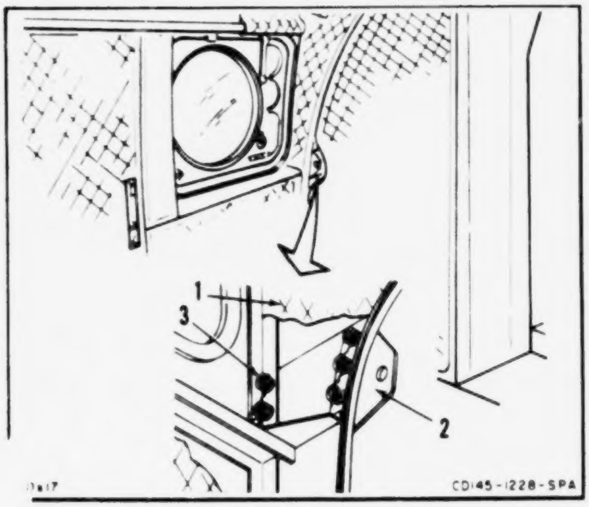

FORWARD SUPPORT PLATE
20x17
CD145-1227-SPA

1. **Pull back edges of acoustic blankets (1)** around plate (2).

NOTE

Plates may be riveted on some installations. If plate is riveted, rivets and plate are removed, and steps 2 thru 5 deleted.

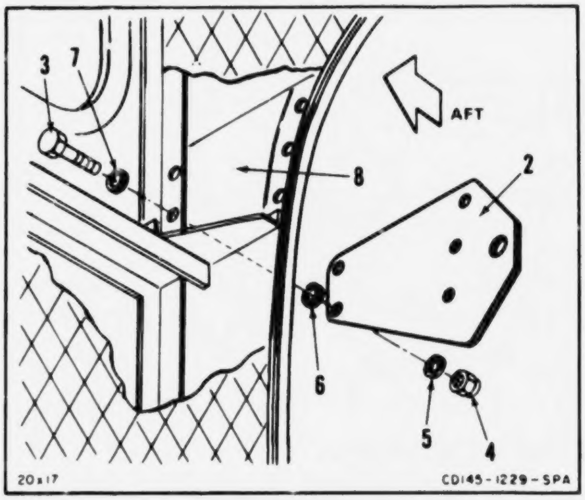
2. Remove lockwire from bolts (3).


1
3
2
10x17
CD145-1228-SPA

GO TO NEXT PAGE

2-234 REMOVE SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE (Continued) 2-234

3. **Remove five nuts (4) and washers (5).**
4. **Remove plate (2) and five washers (6)** from bolts (3).
5. **Remove five bolts (3) and washers (7)** from structure (8).


3
7
AFT
8
2
6
5
4
20x17
CD145-1229-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-235 INSTALL SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE 2-235

INITIAL SETUP

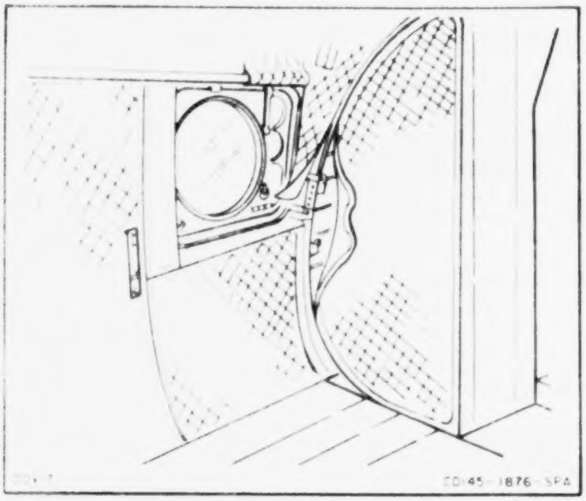
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Torque Wrench, 30 to 150 Inch-Pounds

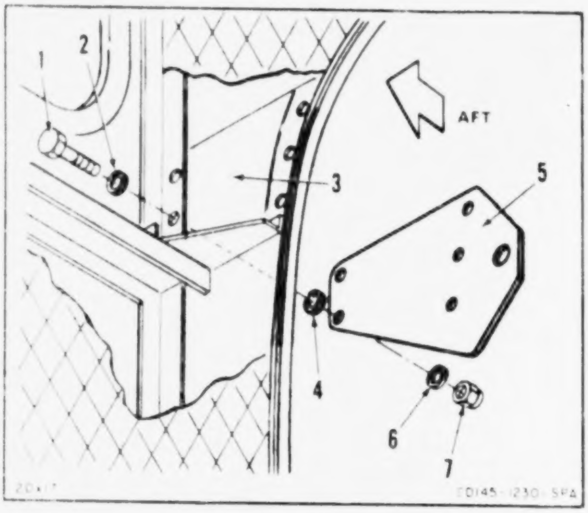
Materials:
Lockwire (E231)
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



1. **Install five bolts (1)** and washers (2) through structure (3).
2. **Install five washers (4)** on bolts (1).



WARNING

Zinc chromate primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. Coat mounting side of plate (5) with primer (E291). Use goggles to protect eyes. Wear gloves (E186).
4. **Install plate (5)** on bolts (1).
5. **Install five washers (6) and nuts (7)** on bolts (1).
6. **Torque nuts (7) to 55 inch-pounds.**

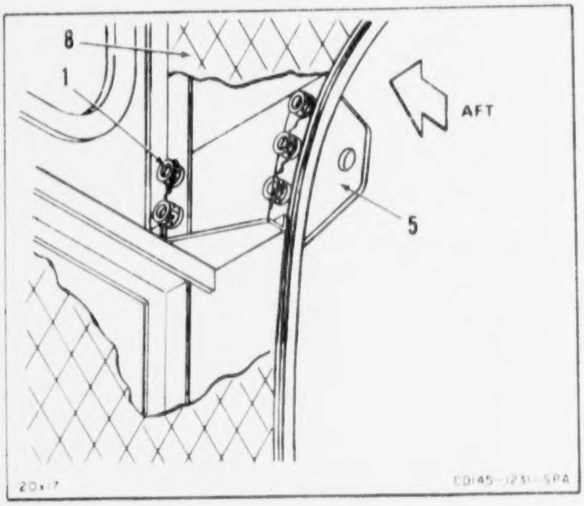
GO TO NEXT PAGE

2-235 INSTALL SUPPRESSIVE FIRE SYSTEM FORWARD SUPPORT PLATE (Continued)

7. Install lockwire (E231) on bolts (1).

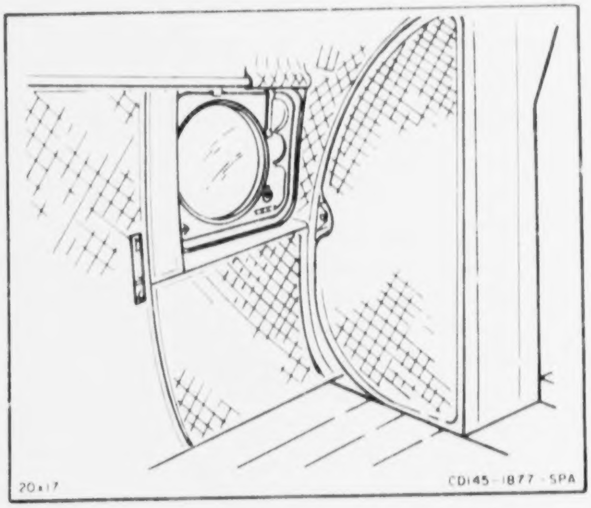
INSPECT

8. Press down edges of acoustic blankets (8) on both sides of plate (5).


8
1
AFT
5
20x17
CD145-1231-SPA

FOLLOW-ON MAINTENANCE:

None


20x17
CD145-1877-SPA

END OF TASK

2-236 REMOVE CABIN FLOOR 10,000-POUND TIEDOWN RING ASSEMBLY 2-236

INITIAL SETUP

Applicable Configurations:

Without 19

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

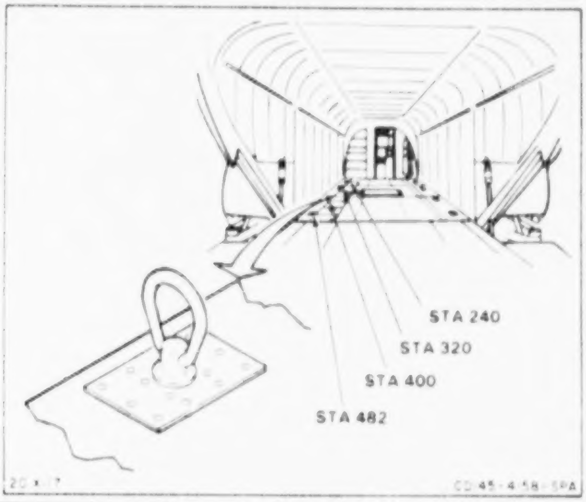
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

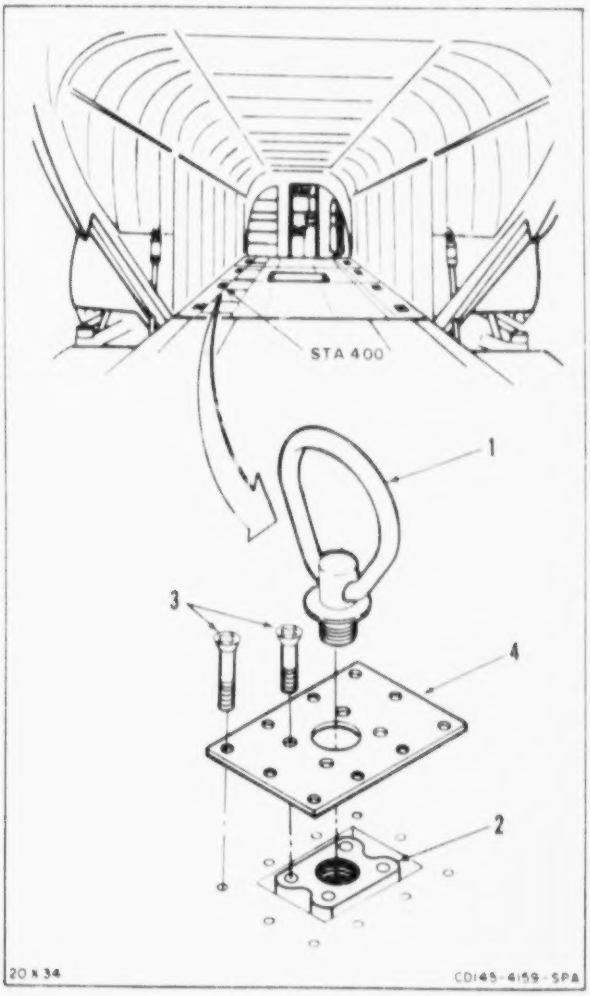
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)
Cabin Floor Panel Removed (Task 2-204)


STA 240
STA 320
STA 400
STA 482
20 x 17
CD145-4158-SPA

NOTE

Procedure is same to remove any of eight 10,000-pound tiedown adapters. Adapter at station 400 is shown here.

1. **Remove tiedown ring (1)** from adapter (2).
2. Remove 14 screws (3) from plate (4).
3. **Remove plate (4).**
4. **Remove adapter (2).**
5. **Remove tape and sealant** from adapter (2) and plate (4).


STA 400
1
3
4
2
20 x 34
CD145-4159-SPA

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-237 INSTALL CABIN FLOOR 10,000-POUND RING TIEDOWN ASSEMBLY 2-237

INITIAL SETUP

Applicable Configurations:

Without **19**

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

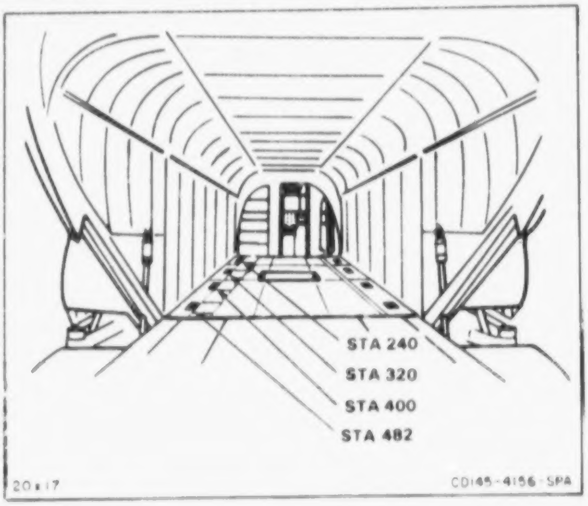
Mylar Tape (E389)
Sealant (E327)
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer

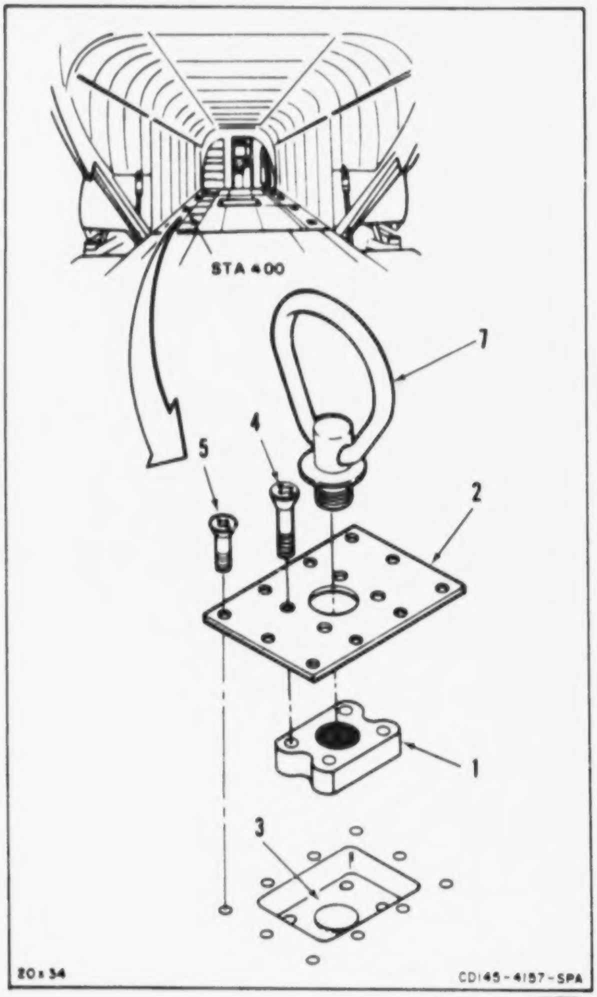
References:

TM 55-1520-240-23P


STA 240
STA 320
STA 400
STA 482
20x17
CD145-4156-SPA

GO TO NEXT PAGE

2-237 INSTALL CABIN FLOOR 10,000-POUND RING TIEDOWN ASSEMBLY (Continued) 2-237



NOTE

Procedure is same to install any of eight 10,000-pound tiedown adapters. Installation of adapter at station 400 is shown here.

1. Apply mylar tape (E389) to mating faces of adapter (1) and plate (2). Cut tape from holes.

WARNING

Sealant (E327) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. **Install adapter (1)** into floor (3). Apply sealant (E327) around edges of adapter and around bottom edges of plate (2). Install plate over adapter and align bolt holes.

WARNING

Zinc chromate primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. Apply zinc chromate primer (E291) to screws (4 and 5). Wear gloves (E186).
4. **Install four screws (4)** wet with primer, in plate (2) and adapter (1). **Install 10 screws (5)** wet with primer, in plate.
5. **Install ring (7)** in adapter (1).

FOLLOW-ON MAINTENANCE:

Close cargo ramp (TM 55-1520-240-T).

Install cabin floor panels (Task 2-207).

GO TO NEXT PAGE

2-237.1 REMOVE CABIN FLOOR 10,000-POUND TIEDOWN FITTING

INITIAL SETUP

Applicable Configurations:

With 19

Tools:

Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

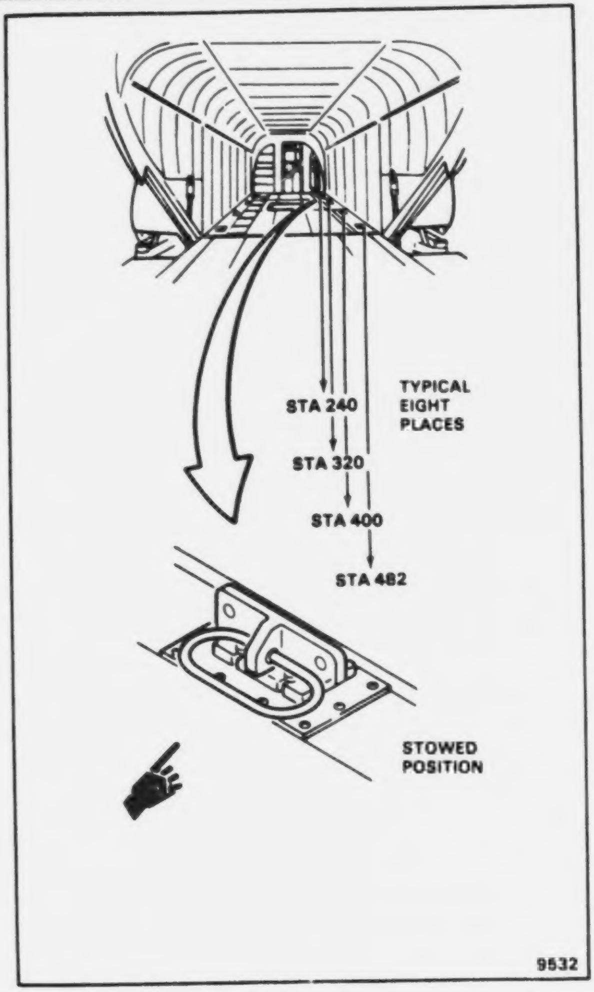
None

Personnel Required:

Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)
Hydraulic Power Off (After Ramp Lowered)
One-Man Troop Seat Stowed (Task 2-227)
Three-Man Troop Seat Stowed (Task 2-233)


STA 240
TYPICAL EIGHT PLACES
STA 320
STA 400
STA 482
STOWED POSITION
9532

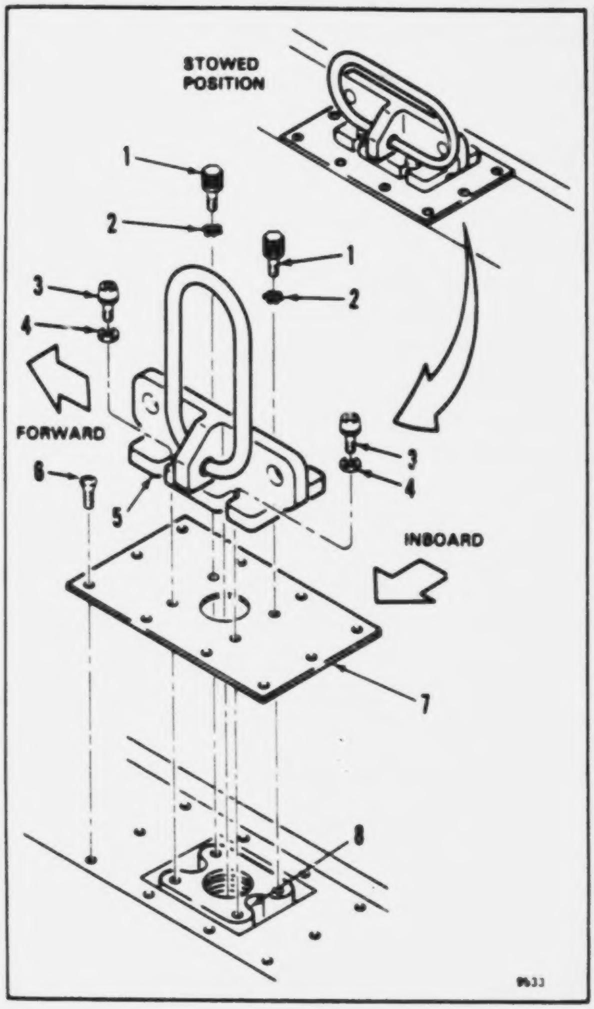
GO TO NEXT PAGE

2-237.1 REMOVE CABIN FLOOR 10,000-POUND TIEDOWN FITTING (Continued) 2-237.1

NOTE

Procedure is same to remove any of eight 10,000-pound tiedown adapters. Adapter at station 400 is shown here.

1. **Remove bolts (1)** and washers (2).
2. **Remove bolts (3)** and washers (4).
3. **Remove tiedown fitting (5).**
4. Remove 10 screws (6) from plate (7).
5. **Remove plate (7).**
6. **Remove adapter (8).**
7. **Remove tape and sealant** from adapter (8) and plate (7).


STOWED POSITION
1
2
1
2
3
4
FORWARD
3
4
6
5
INBOARD
7
8
9633

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-237.2 INSTALL CABIN FLOOR 10,000-POUND TIE DOWN FITTING

INITIAL SETUP

Applicable Configurations:

With 19

Tools:

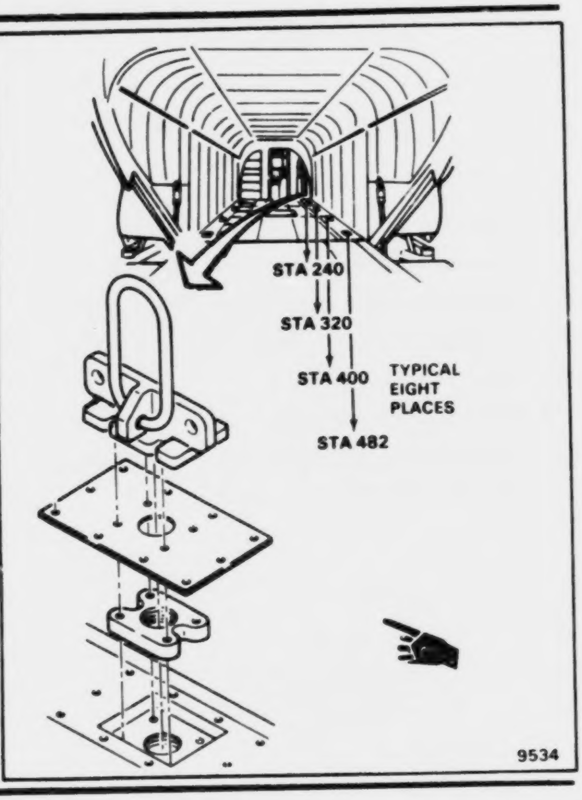
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:

Mylar Tape (E389)
Sealant (E327)
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:

Medium Helicopter Repairer



NOTE

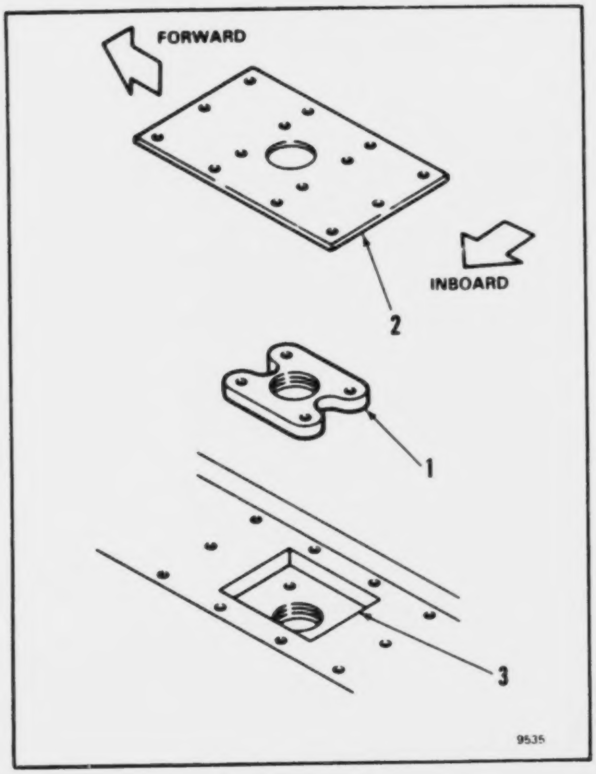
Procedure is same to install any of eight tiedown fittings. Fitting at station 400 is shown here.

1. Apply mylar tape (E389) to mating faces of adapter (1) and plate (2). Cut tape from holes.

WARNING

Sealant (E327) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. **Install adapter** (1) into floor (3). Apply sealant (E327) around edges of adapter and around bottom edges of plate (2). Install plate over adapter and align bolt holes.



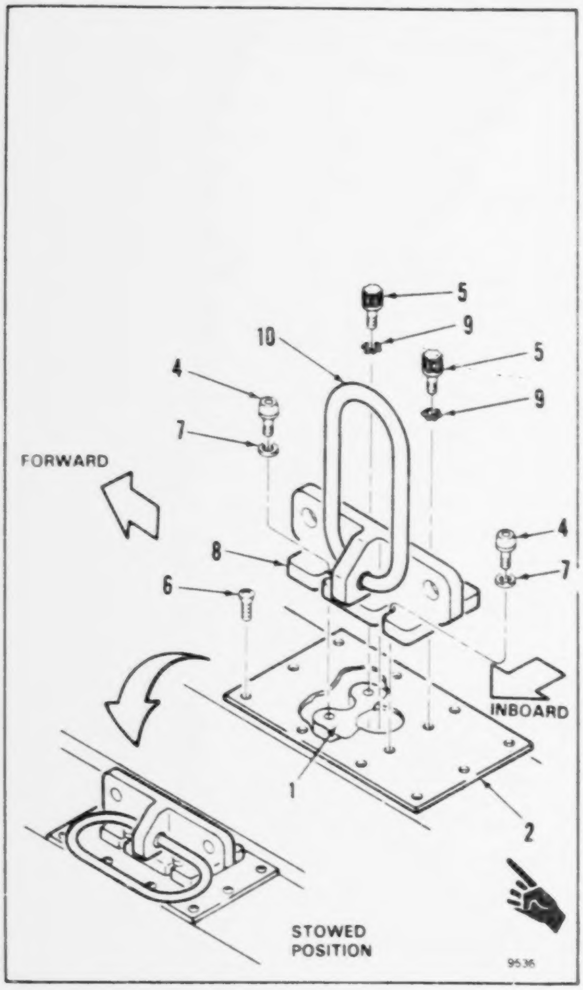
GO TO NEXT PAGE

2-237.2 INSTALL CABIN FLOOR 10,000-POUND TIE DOWN FITTING (Continued) 2-237.2

WARNING

Zinc chromate primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. Apply zinc chromate primer (E291) to bolts (4) and (5) and screws (6). Wear gloves (E186).
4. **Install bolts (4)** wet with primer and washers (7) in plate (2) and adapter (1). Adjust bolt and washer height slightly higher than thickness of 10,000 pound fitting (8). **Install 10 screws** (6) wet with primer in plate (2).
5. **Slide fitting (8)** in place on plate (2) with slotted holes inboard and under bolts (4) and washers (7).
6. Install two washers (9) and bolts (5). Tighten two bolts (4) and two bolts (5).
7. Place all eight 10,000-pound fitting rings (10) in stowed position flat on cabin floor.



FOLLOW-ON MAINTENANCE:

Unstow one-man troop seat (Task 2-222).

Unstow three man troop seat (Task 2-228).

Close cargo ramp (TM 55-1520-240-T).

END OF TASK

2-238 REMOVE CARGO RAMP EXTENSION 2-238

INITIAL SETUP

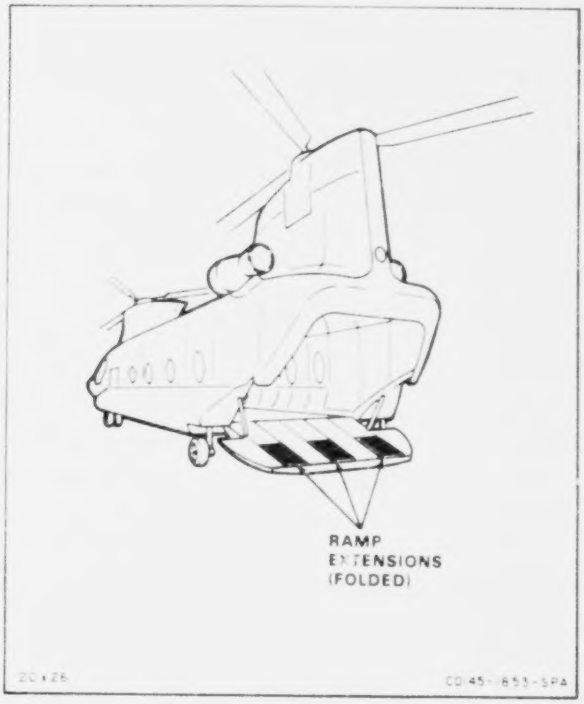
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Brush (E85)
Dry Cleaning Solvent (E162)

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)



NOTE

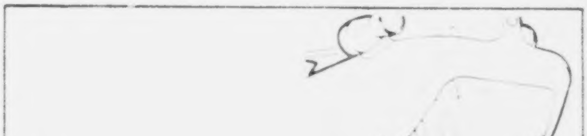
Procedure can be used for all three ramp extensions. Right extension is shown here.

1. Unfold ramp extension (1).

WARNING

Dry Cleaning Solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

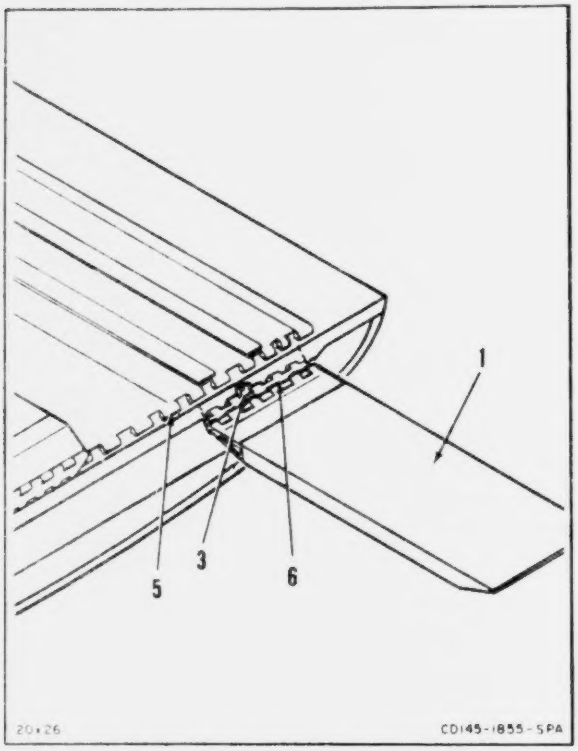
2. **Clean hinge (2).** Use dry cleaning solvent (E162) and brush (E85). Wear goggles.
3. Have helper lift and hold extension (1).
4. **Raise spring lock (3)** using screwdriver (4) between cargo ramp hinge (5) and back of spring lock.



GO TO NEXT PAGE

2-238 REMOVE CARGO RAMP EXTENSION (Continued) 2-238

5. **Slide extension (1)** to left until clear of ramp hinges (5 and 6).
6. Release spring lock (3).
7. **Remove extension (1).**


1
3
5
6
20x26
CD145-1855-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-239 REMOVE CARGO RAMP EXTENSION HINGE 2-239

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

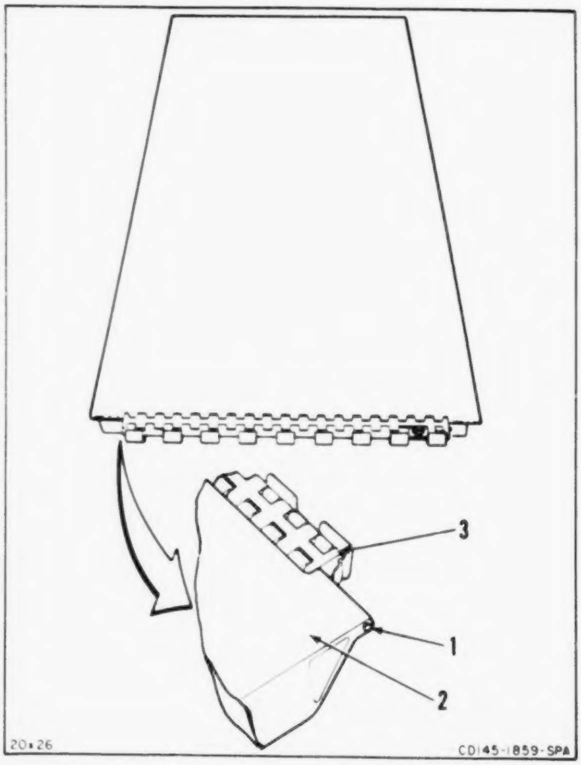
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task

NOTE

Procedure is the same for all ramp extensions.

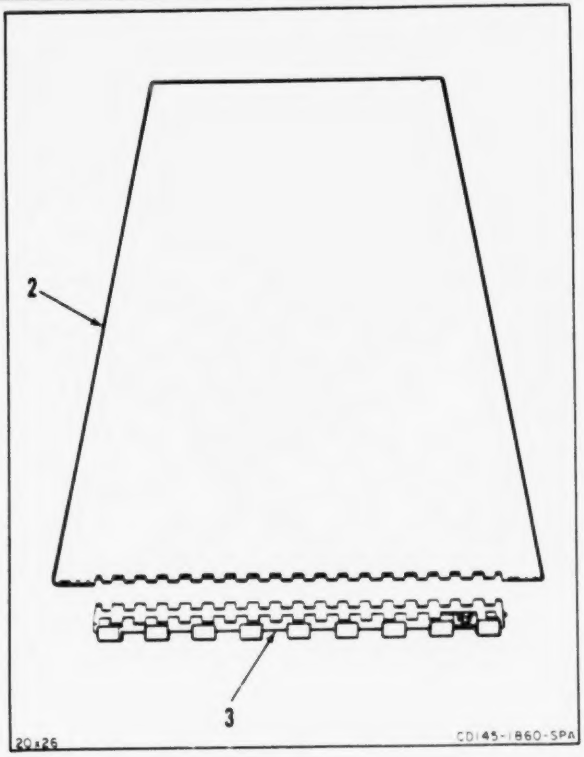


1. **Remove hinge pin (1)** from ramp extension (2) and hinge (3).

GO TO NEXT PAGE

2-239 REMOVE CARGO RAMP EXTENSION HINGE (Continued) 2-239

2. **Remove hinge (3)** from ramp extension (2).


2
3
20x26
CD145-1860-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-240 INSTALL CARGO RAMP EXTENSION HINGE 2-240

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

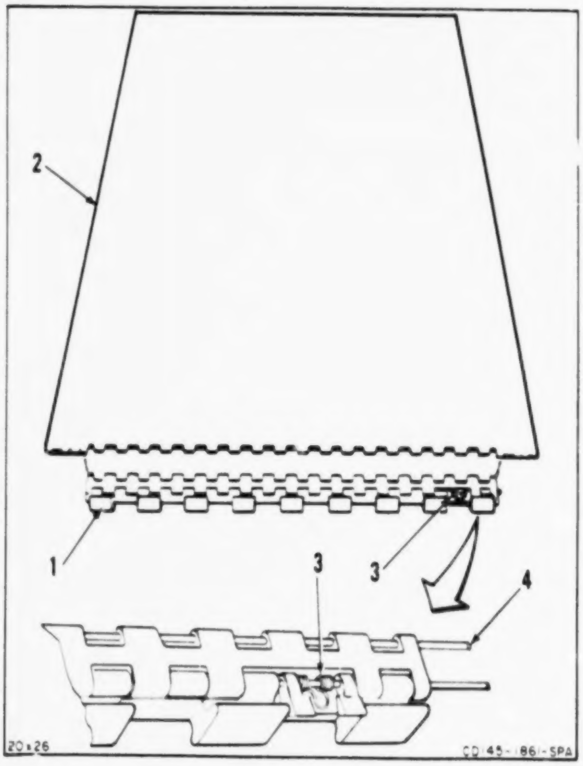
Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P

NOTE

Procedure is same for all ramp extensions.

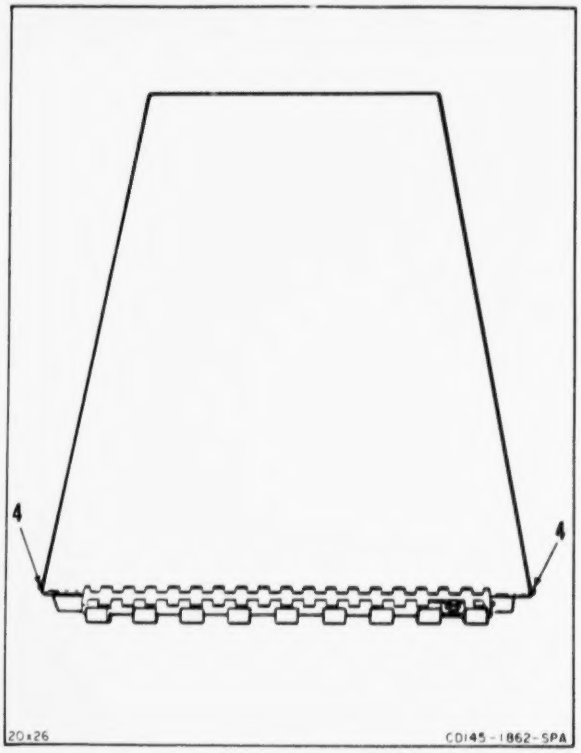
1. **Position hinge (1)** on ramp extension (2). Check that spring lock (3) is down.
2. **Install pin (4)** through hinge (1) and ramp extension (2).



GO TO NEXT PAGE

2-240 INSTALL CARGO RAMP EXTENSION HINGE (Continued) 2-240

3. Point stake both ends of pin (4).


4
4
20x26
CD145-1862-SPA

FOLLOW-ON-MAINTENANCE:

None

END OF TASK

2-241 DISASSEMBLE CARGO RAMP EXTENSION (WORK PLATFORM) 2-241

INITIAL SETUP

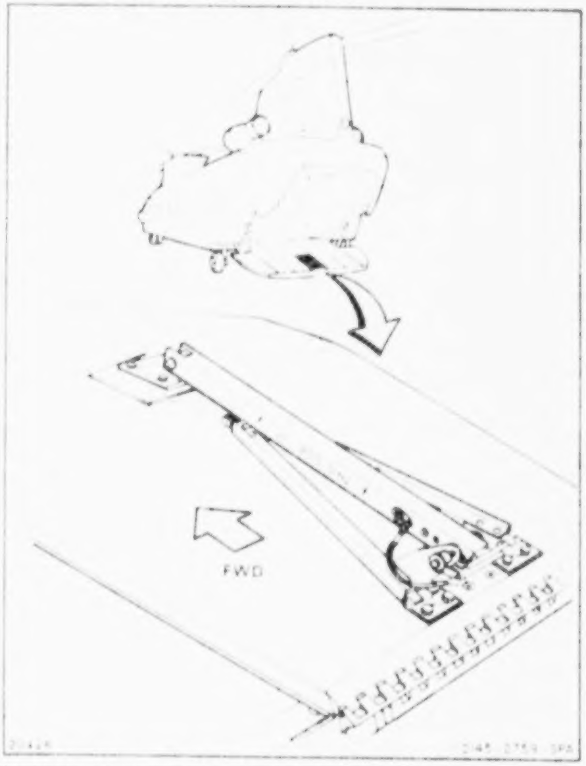
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

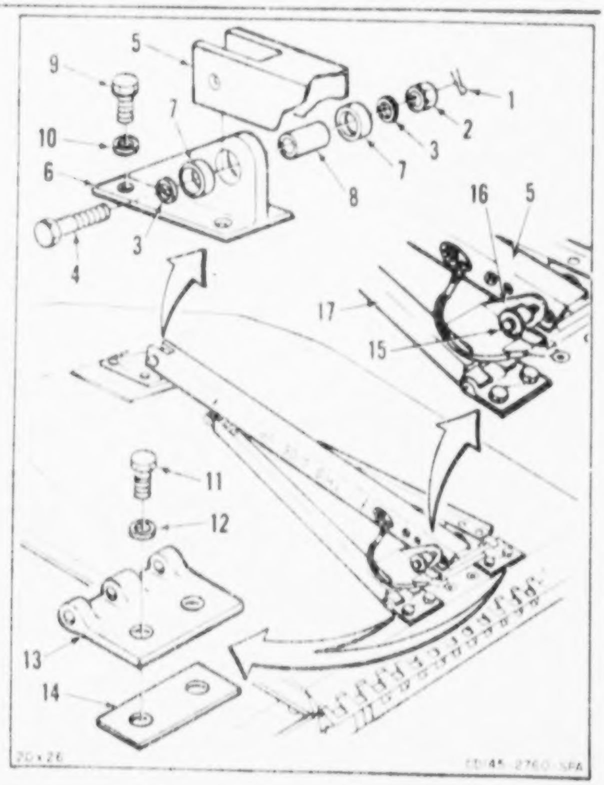
Materials:
Paper Tags (E264)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)
Ramp Extension Folded (Task 2-254)



1. **Remove cotter pin (1),** nut (2), two washers (3), and **bolt (4)** from brace (5). **Separate brace** from fitting (6).
2. **Remove two spacers (7) and bushing (8)** from fitting (6).
3. **Remove** lockwire, **four bolts (9)** and washers (10) from fitting (8).
4. **Remove** lockwire, four bolts (11) and washers (12) from two leaves (13). Tag and remove shims (14) under leaves, if installed.
5. **Remove pin (15)** from hinge (16).
6. **Remove link (17) and brace (5).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-242 REPAIR CARGO RAMP EXTENSION 2-242

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-356

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. If minor damage limits are exceeded, damage can be repaired as shown
2. If extruded parts are damaged, refer to TM 55-1500-204-25/1 for damage classification
3. For typical repairs to sandwich honeycomb structures, refer to TM 55-1500-204-25/1
4. Apply walkway material, if required (Task 2-356).

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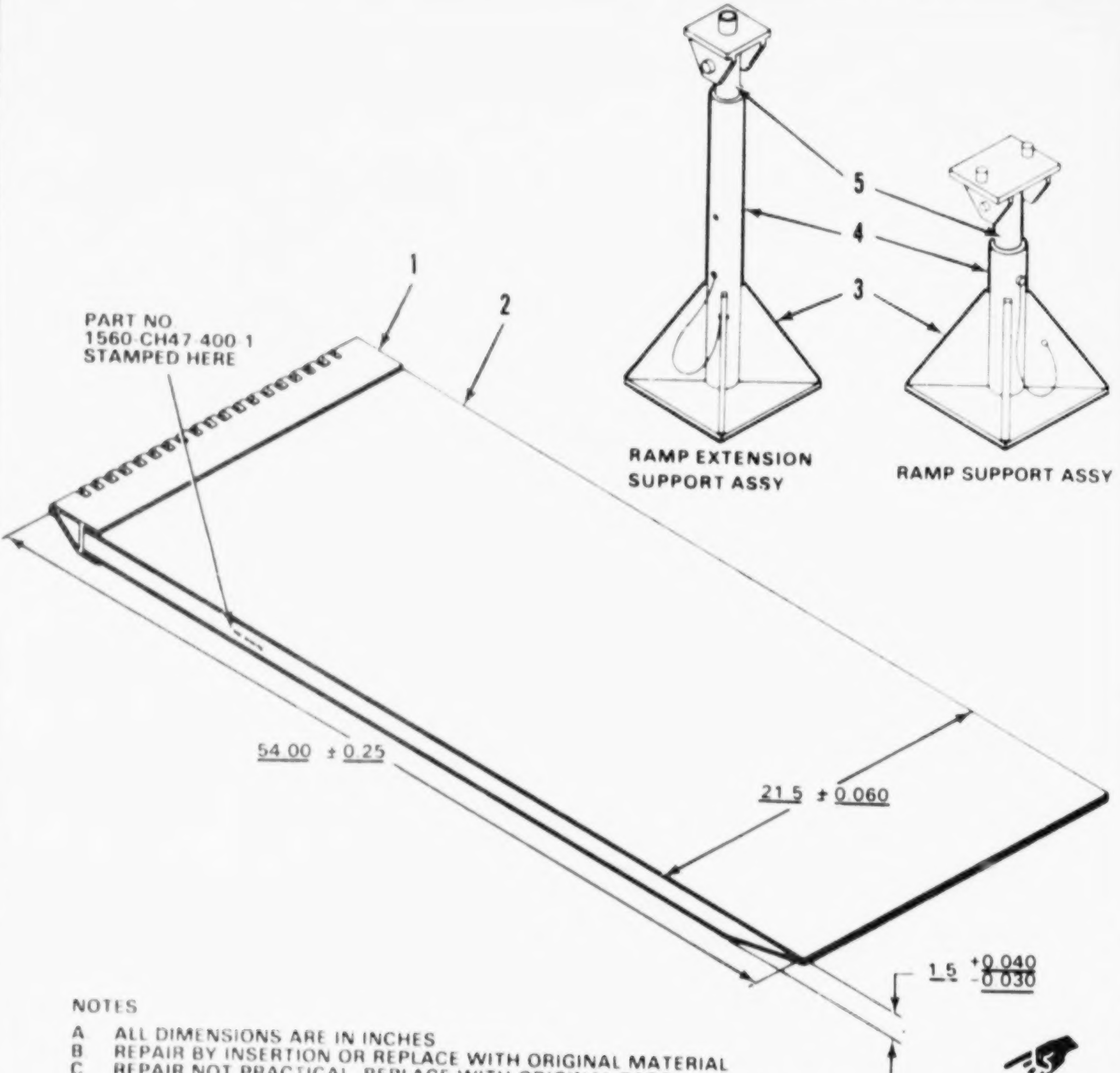
2-242 REPAIR CARGO RAMP EXTENSION (Continued) 2-242


5
4
3
1
2
PART NO
1560-CH47-400-1
STAMPED HERE
RAMP EXTENSION
SUPPORT ASSY
RAMP SUPPORT ASSY
54.00 ± 0.25
21.5 ± 0.060
1.5 +0.040 -0.030

NOTES

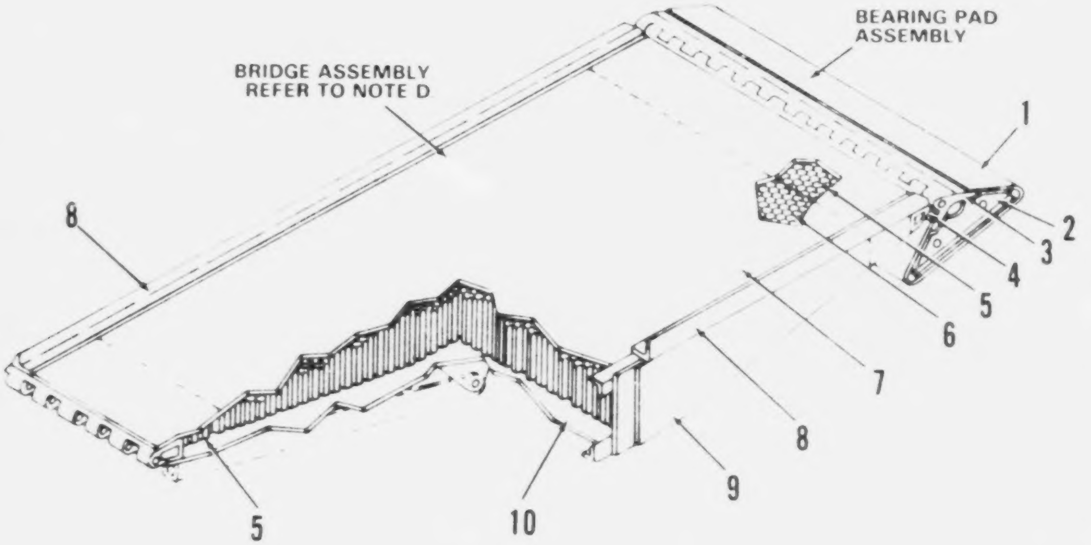
A ALL DIMENSIONS ARE IN INCHES
B REPAIR BY INSERTION OR REPLACE WITH ORIGINAL MATERIAL
C REPAIR NOT PRACTICAL. REPLACE WITH ORIGINAL PART
D REPAIR NOT PRACTICAL. FABRICATE NEW PART OR REPLACE WITH NEW ORIGINAL MATERIAL

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	HINGE ASSY	DOW 10566 6061-T6	NOTE B	—
2	STRUCTURAL MEMBER	DOW XM18 6061-T6	NOTE C	—
3	FOOT	0.250 6061-T6	NOTE D	—
4	OUTER TUBE	0.250 6061-T6	NOTE D	—
5	INNER TUBE	0.375 6061-T6511	NOTE D	—

301

GO TO NEXT PAGE

2-242 REPAIR CARGO RAMP EXTENSION (Continued) 2-242



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	SKIN	0.016 301-1/2H CRES	0.020 301-1/2H CRES	2-13
2	FORMER	0.063 2024-T3 CLAD	0.071 2024-T3 CLAD	NOTE E
3	HINGE	VS90565 2014-T6	NOTE B	—
4	BUMPER	—	NOTE C	—
5	CORE	1.50.6.5-3/8-50N-3003	NOTE D	NOTE E
6	CORE	4.00, 3.0-3/8-20N-3003	NOTE D	NOTE E
7	SKIN	0.025 7075-T6 CLAD	NOTE D	2-13
8	RAIL	VS90545 7075-T6	0.063 4130 COND N	NOTE E
9	SKIN	0.016 2024-T4 CLAD	NOTE D	2-13
10	SKIN	0.016 7075-T6 CLAD	NOTE D	2-13

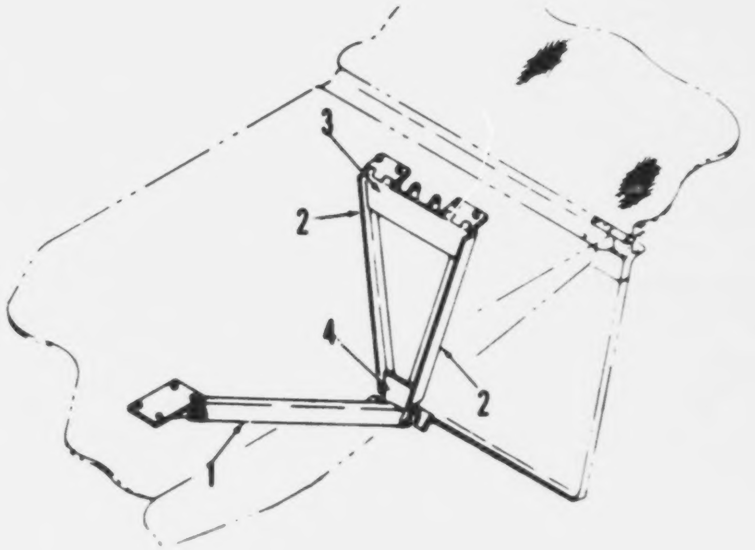
NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. MAKE FROM ORIGINAL MATERIAL OR USE 114S6604-21
C. BUMPER IS MADE FROM CELLULAR RUBBER (E281). REPLACE WITH ORIGINAL MATERIAL
D. BRIDGE ASSEMBLY IS A BONDED ASSEMBLY WITH A RIGIDIZED TOP SKIN. REPAIR USING SAME TYPE MATERIAL AS ORIGINAL. REFER TO TASK 2-10
E. TM 55-1500-204-25/1

302

GO TO NEXT PAGE

2-242 REPAIR CARGO RAMP EXTENSION (Continued) 2-242



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	TUBE	BAC1501-100039 7075-T6	0.063 7075-T6 CLAD	NOTE B
2	TEE	BAC1505-100241 7075-T6	0.063 7075-T6 CLAD	NOTE B
3	HINGE	MS20001Y12	MS20001Y12	—
4	HINGE	MS20001X14	MS20001X14	—

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

303

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-243 ASSEMBLE CARGO RAMP EXTENSION (WORK PLATFORM) 2-243

INITIAL SETUP

Applicable Configurations:
All

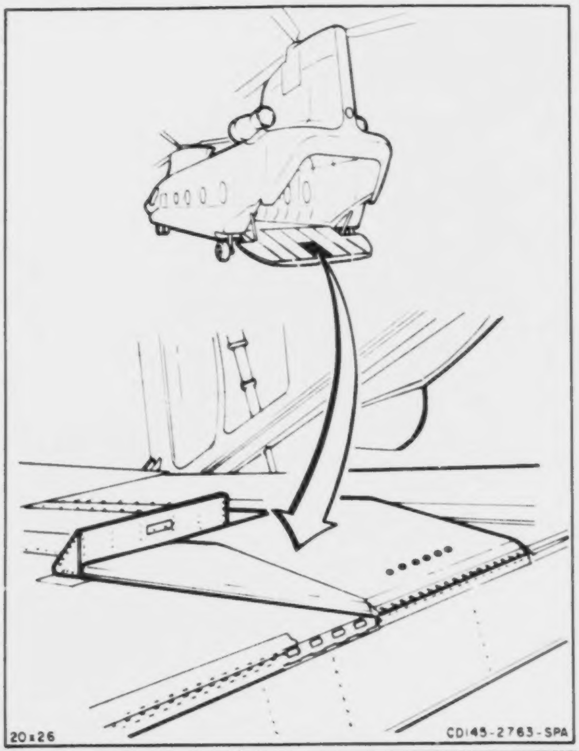
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lockwire (E230)

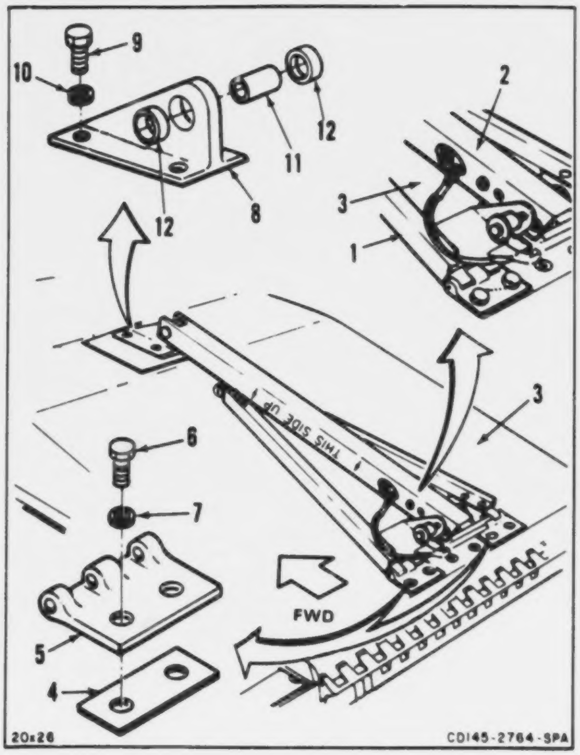
Parts:
Cotter Pin

Personnel Required:
67U10 Medium Helicopter Repairer

References:
TM 55-1520-240-23P



1. **Position link (1) and brace (2)** on extension (3).
2. Remove tags and **position shims (4)** under two leafs (5), if removed.
3. **Position shims (5) and leaves (5)** on extension (3). **Install four bolts (6)** and washers (8). Lockwire bolts using lockwire (E230).
4. **Move brace (2)** to position fitting (8).
5. **Position fitting (8)** on extension (3). **Install four bolts (9)** and washers (10). Lockwire bolts using lockwire (E230).
6. **Position bushing (11) and two spacers (12)** on fitting (8).



GO TO NEXT PAGE

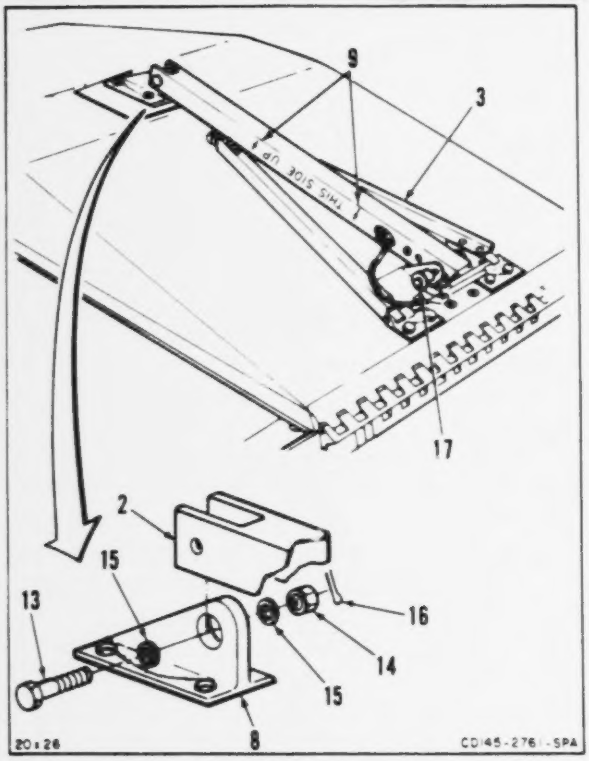
2-243 ASSEMBLE CARGO RAMP EXTENSION (WORK PLATFORM) (Continued) 2-243

WARNING

Brace must be installed with stenciled arrows pointing toward center of extension. Otherwise extension can collapse when used as work platform.

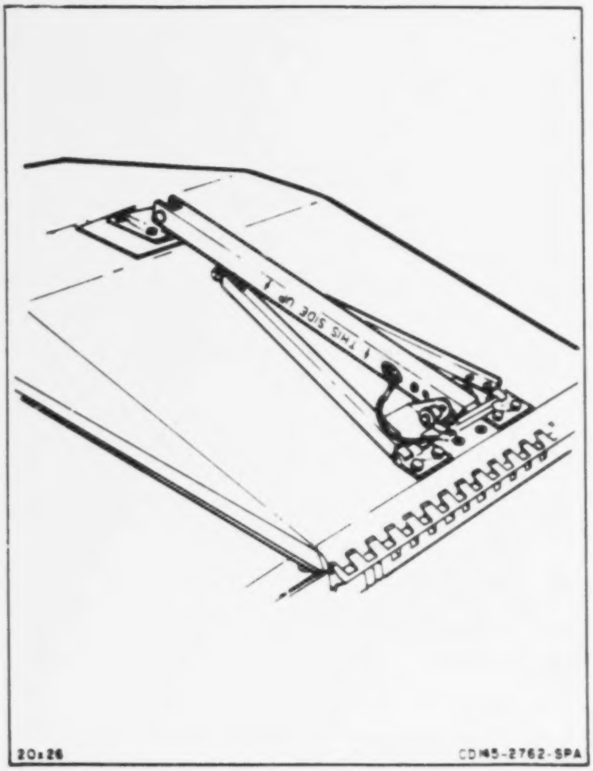
7. **Position brace (2) on fitting (8)** with arrows (9) pointing toward center of extension (3).

8. **Install bolt (13),** nut (14) and two washers (15). Install cotter pin (16).
9. **Install pin (17).**


9
3
THIS SIDE UP
17
2
15
13
16
14
15
8
20x26
CD145-2761-SPA

FOLLOW-ON MAINTENANCE:

None


THIS SIDE UP
20x26
CD145-2762-SPA

END OF TASK

2-244 INSTALL CARGO RAMP EXTENSION 2-244

INITIAL SETUP

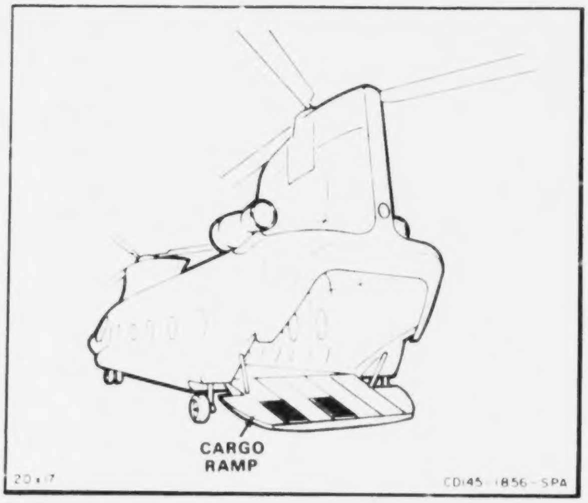
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Brush (E85)
Dry Cleaning Solvent (E162)

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM55-1520-240-23P



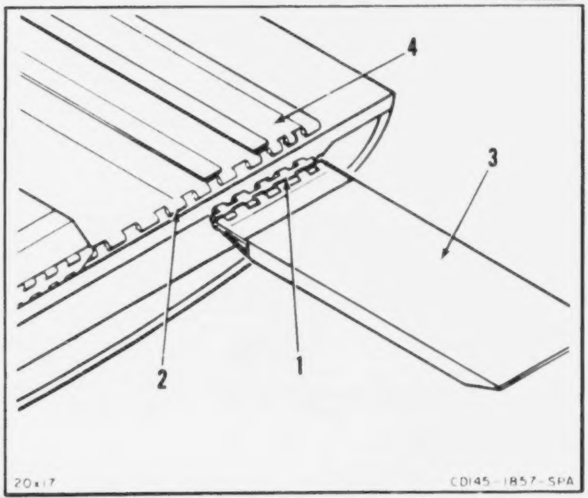
WARNING

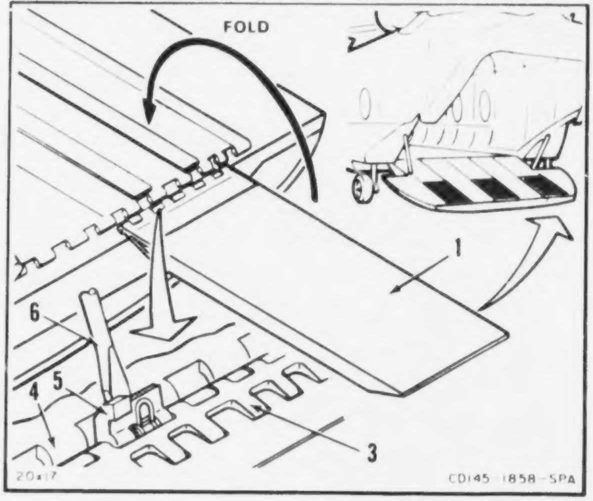
Dry cleaning solvent (E162) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water. Get medical attention immediately.

NOTE

Procedure can be used for all three ramp extensions. Right extension is shown here.

1. Clean extension ramp hinge (1) and cargo ramp hinge (2). Use dry cleaning solvent (E162) and brush (E85). Wear goggles.
2. Have helper **position extension (3)** at ramp (4).
3. **Insert extension ramp hinge (1)** in cargo ramp hinge (2).
4. **Raise spring lock (5)** using screwdriver (6) between cargo ramp hinge (4) and back of spring lock.
5. **Slide extension (1)** until hinge (4) locks in extension ramp hinge (3).
6. Release spring lock (5).
7. Fold extension (1).





FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-244.1 RAMP EXTENSION SUPPORT ASSEMBLY STOWAGE PROVISIONS 2-244.1

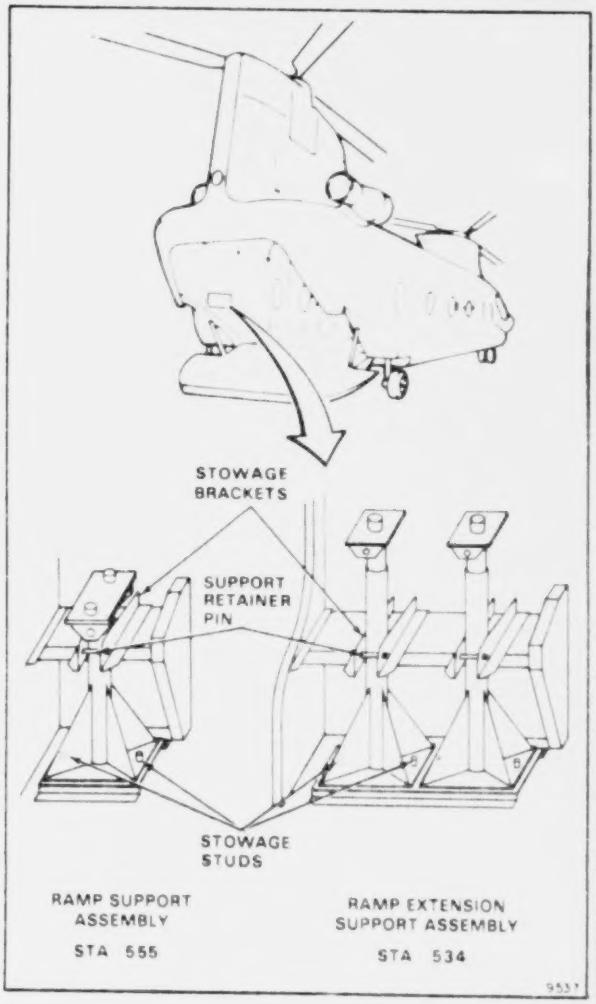
INITIAL SETUP

Applicable Configurations:
With **19**

Materials:
None

Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-23P


STOWAGE BRACKETS
SUPPORT RETAINER PIN
STOWAGE STUDS
RAMP SUPPORT ASSEMBLY
STA 555
RAMP EXTENSION SUPPORT ASSEMBLY
STA 534
9537

1. Stow ramp support assembly at sta 555 wl 0.0 left hand side.
2. Stow two ramp extension support assemblies at sta 534 wl 0.0 left hand side.

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-245 REMOVE RAMP TIEDOWN ADAPTERS 2-245

INITIAL SETUP

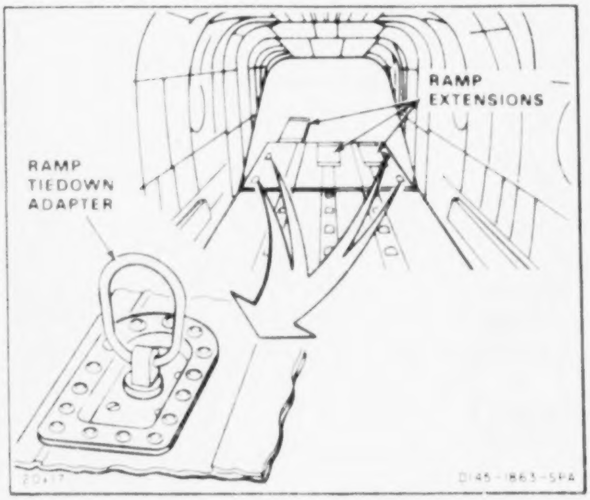
Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer

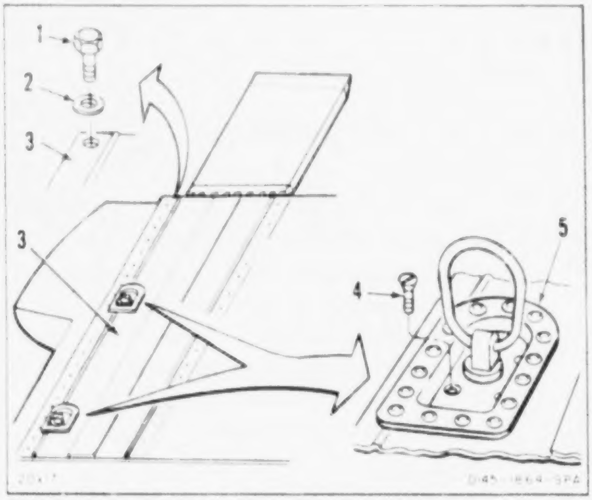
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered (TM 55-1520-240-T)
Cargo Ramp Extension Unfolded


RAMP EXTENSIONS
RAMP TIEDOWN ADAPTER
20x17
D145-1863-SPA

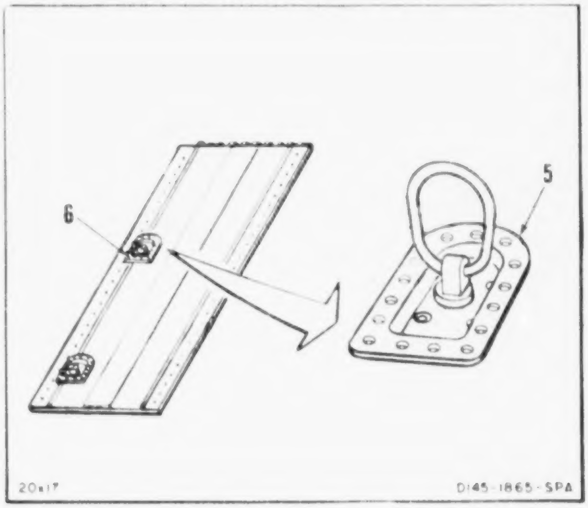
NOTE

Procedure is same for all tiedown adapters. Aft right adapter is shown here.

1. **Remove 62 bolts (1)** and washers (2) from panel (3).
2. **Remove four screws (4)** from forward and aft adapters (5).
3. Pull panel (3) forward and **remove panel.**


1
2
3
3
4
5
20x17
D145-1864-SPA

4. Remove 15 rivets (6). Remove adapter (5).


6
5
20x17
D145-1865-SPA

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-246 INSTALL RAMP TIEDOWN ADAPTERS 2-246

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:
Primer (E291)
Gloves (E186)

Parts:
Rivets

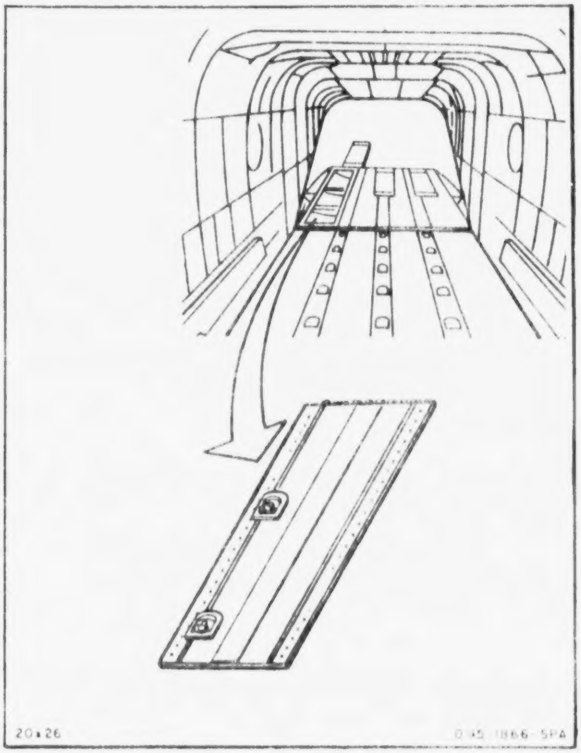
Personnel Required:
68G20 Aircraft Structural Repairer

References:
TM 55-1520-240-23P

General Safety Instructions:

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



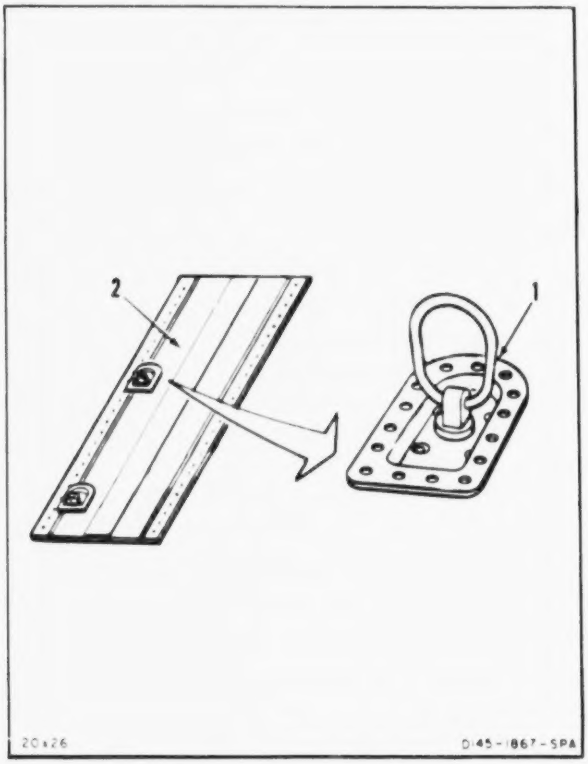
GO TO NEXT PAGE

2-246 INSTALL RAMP TIEDOWN ADAPTER (Continued) 2-246

NOTE

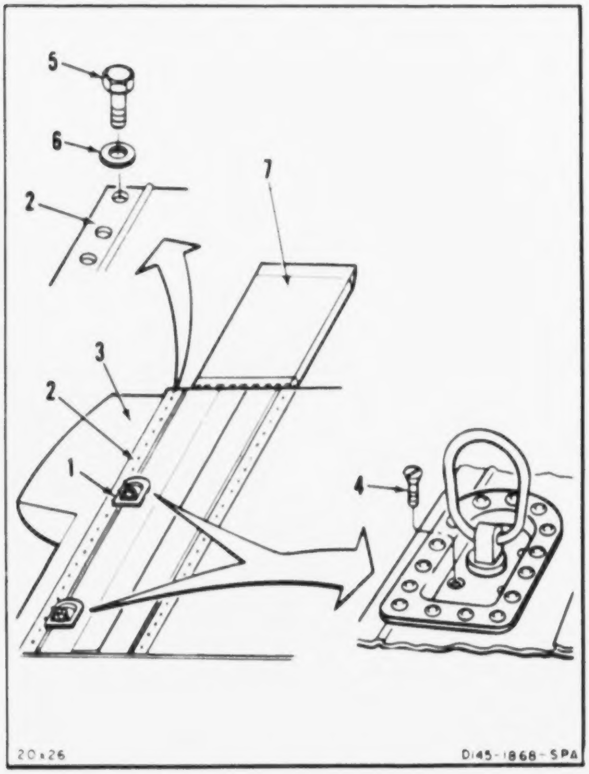
Procedure is same for all tiedown adapters. Aft right adapter is shown here.

1. Apply zinc chromate primer (E291) to underside of adapter (1). Wear gloves (E186).
2. **Install adapter (1)** on panel (2) while primer (E291) is wet. Use 15 rivets.



3. **Position panel (2)** on ramp (3).
4. Coat four screws (4) with primer (E291). **Install four screws,** wet with primer, on adapter (1). Wear gloves (E186).
5. **Install 62 bolts (5)** and washers (6) in panel (2).
6. Fold up extension (7).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

2-247 REMOVE RAMP FLOOR PANELS 2-247

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

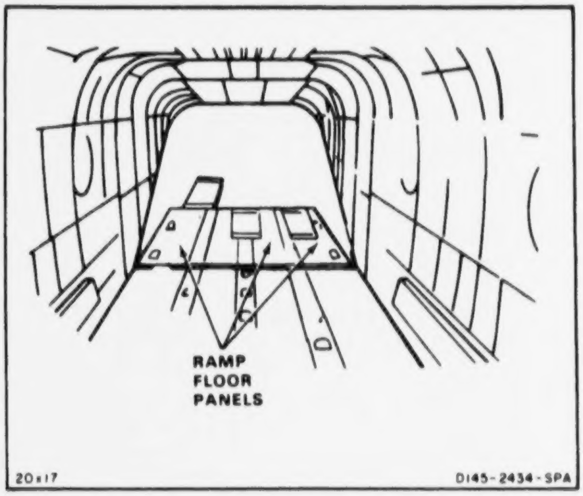
67U10 Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

Electrical Power Off

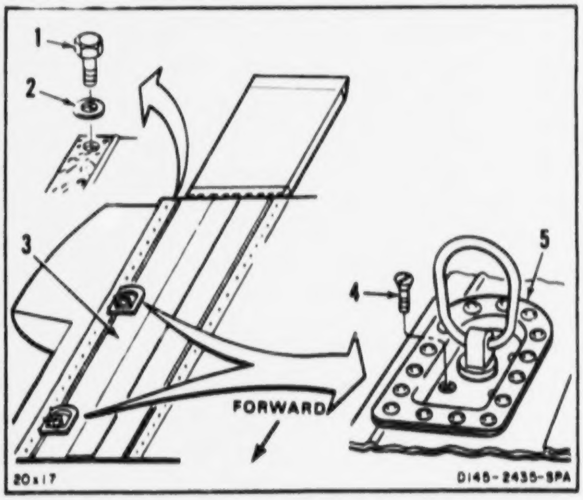
Cargo Ramp Lowered And Right Cargo Ramp Extension Unfolded (TM 55-1520-240-T)

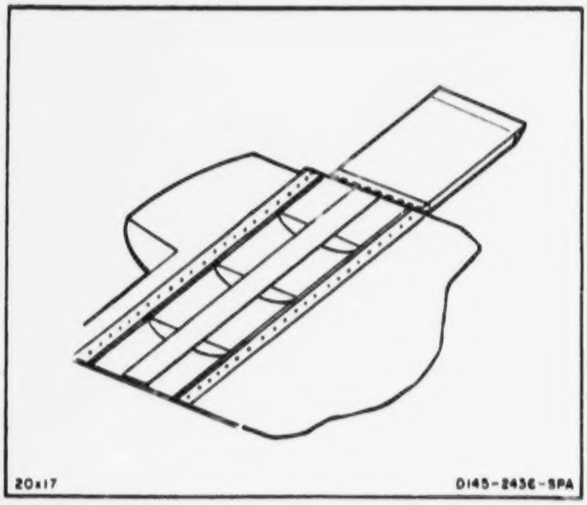

RAMP
FLOOR
PANELS
20x17
D145-2434-SPA

NOTE

Procedure is same for all ramp floor panels. Right floor panel is shown here.

1. **Remove 62 bolts (1)** and washers (2) from panel (3).
2. **Remove eight screws (4)** from two tie-down adapters (5).
3. Pull panel (3) forward and **remove panel.**


1
2
3
4
5
FORWARD
20x17
D145-2435-SPA


20x17
D145-2436-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-248 REPAIR RAMP FLOOR PANELS 2-248

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

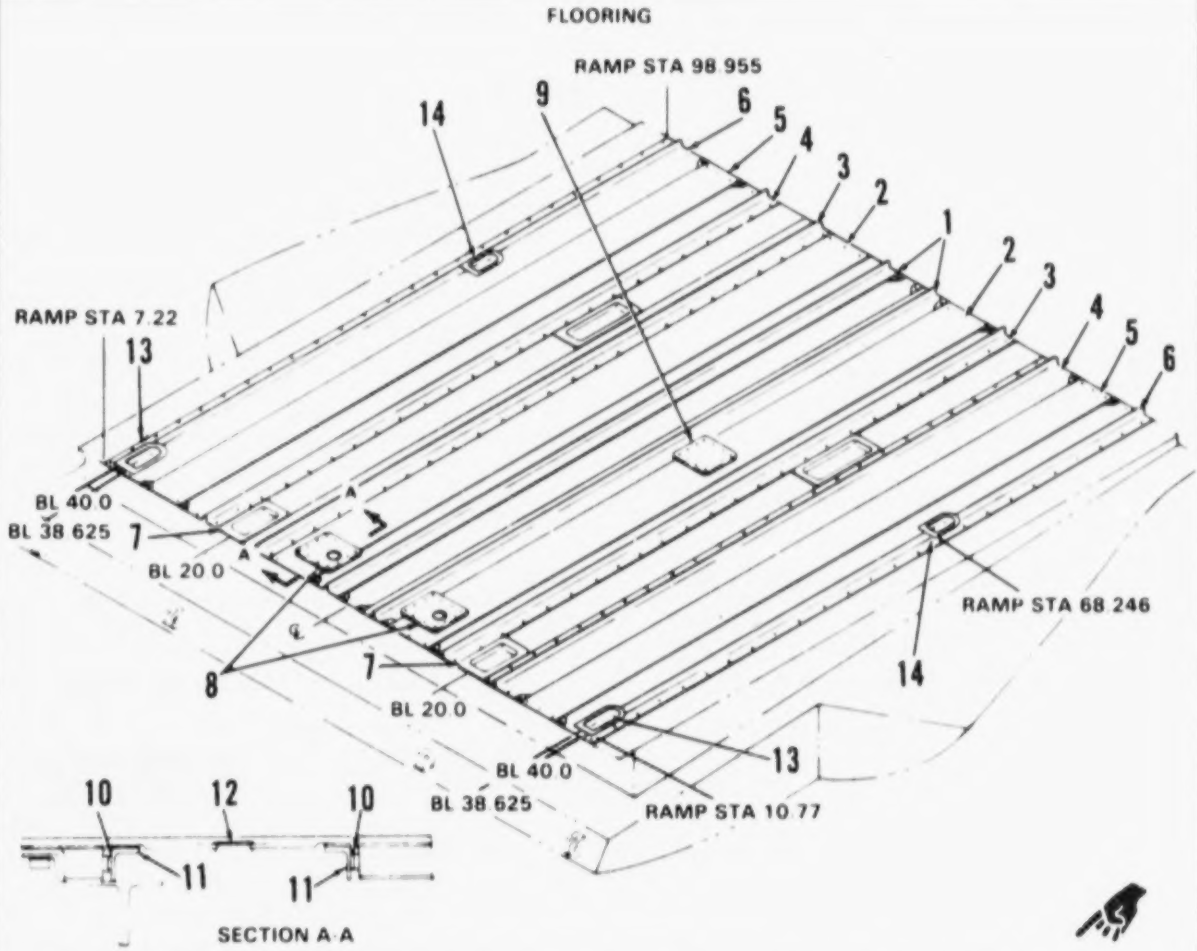
References:
Task 2-254

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Burnish nicks, dents, and scratches (Task 2-254).
2. Plug holes not larger than 1/4-inch diameter with type B rivets.
3. Make sure repairs clear each bolt, rivet, and radius by 3/4-inch, and do not interfere with ramp operation.

GO TO NEXT PAGE


FLOORING
RAMP STA 98.955
14
9
6
5
4
3
2
1
2
3
4
5
6
RAMP STA 7.22
13
BL 40.0
BL 38.625
7
A
A
BL 20.0
8
7
BL 20.0
BL 40.0
BL 38.625
RAMP STA 68.246
14
13
RAMP STA 10.77
10
12
10
11
11
SECTION A-A

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	PANEL	VS90578 MAG ZK 60A-T5	NOTE B.	NOTE F.
2	PANEL	VS90579 MAG ZK 60A-T5	NOTE B.	NOTE F.
3	PANEL	VS90578 MAG ZK 60A-T5	NOTE B.	NOTE F.
4	PANEL	VS90558 MAG ZK 60A-T5	NOTE B.	NOTE F.
5	PANEL	VS90557 MAG ZK 60A-T5	NOTE B.	NOTE F.
6	PANEL	VS90558 MAG ZK 60A-T5	NOTE B.	NOTE F.
7	BEAM	REFERENCE ONLY	SEE TASK 2-254	—
8	PANEL	0.160 7075-T6	NOTE B.	NOTE F.
9	PANEL	0.160 7075-T6	NOTE B.	NOTE F.
10	ANGLE	ALCOA 14202 7075-T6	—	NOTE F.
11	ANGLE	ALCOA 14202 7075-T6	—	NOTE F.
12	PLUG	SS-48166RK2215	NOTE C.	—
13	RECEPTACLE	7075-T6 BARE	NOTE D.	—
14	RECEPTACLE	7075-T6 BARE	NOTE E.	—

NOTES

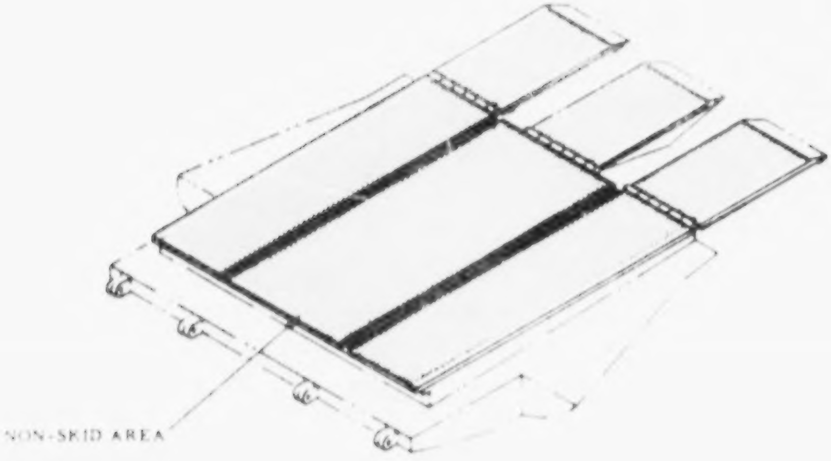
A. ALL DIMENSIONS ARE IN INCHES
B. REPAIR MATERIAL SAME AS ORIGINAL
C. REPLACE WITH NEW PLUG, SS-48166RK2215
D. REPLACE WITH NEW RECEPTACLE, 114S2893-6
E. REPLACE WITH NEW RECEPTACLE, 114S2893-13
F. TM 55-1500-204-25/1

300

Cargo Loading Ramp Assembly Flooring Repairs (Sheet 1 of 2)

GO TO NEXT PAGE

2-248 REPAIR RAMP FLOOR PANELS (Continued) 2-248



CARGO LOADING RAMP (APPLICATION OF NON-SKID PAINT)

A. APPLY NON-SKID PAINT (E239)
IF REPAIRS ARE MADE TO WALKWAY AREA OR
IF EXISTING COATING IS WORN (TASK 2-356)
B. DO NOT APPLY NON-SKID PAINT TO CARGO TIE-
DOWN RETAINERS
C. SEE TASK 2-352 FOR INFORMATION ON REPLACE-
MENT OF MARKINGS

42 × 51 D145-9762-5PA

Cargo Loading Ramp Assembly Flooring Repairs (Sheet 2 of 2)

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-249 INSTALL RAMP FLOOR PANELS 2-249

INITIAL SETUP

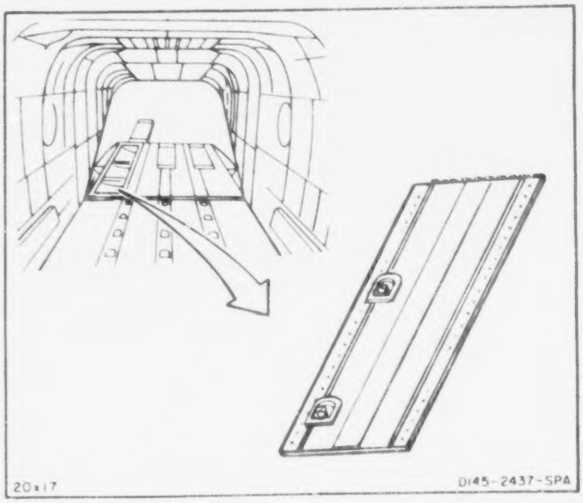
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Gloves (E186)
Primer (E291)

Personnel Required:
67U10 Medium Helicopter Repairer

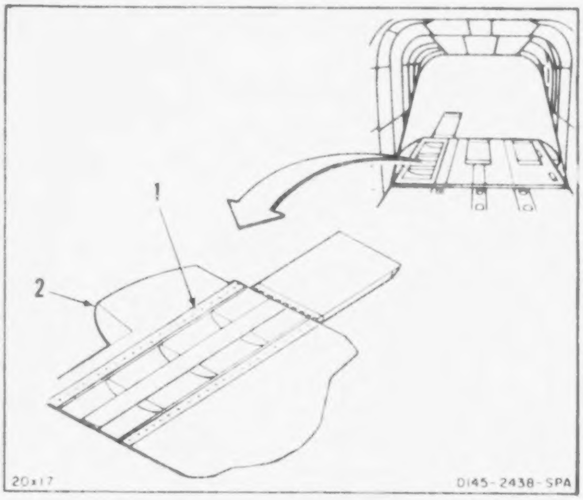
References:
TM 55-1520-240-23P



NOTE

Procedure is same for all ramp floor panels. Right floor panel is shown here.

1. Make sure faying surface seal (1) on ramp (2) is not cut or cracked. If bad, replace seal.



GO TO NEXT PAGE

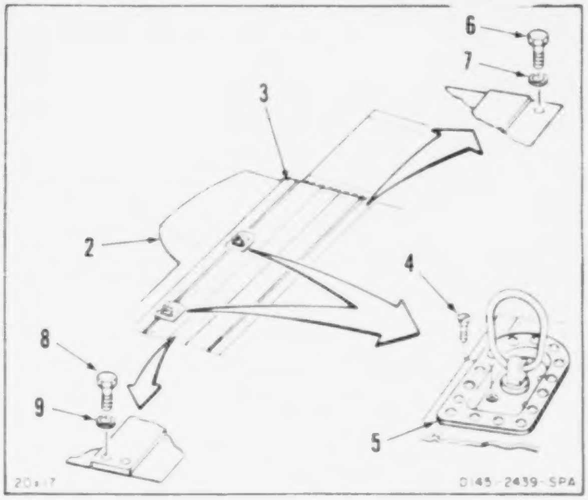
2-249 INSTALL RAMP FLOOR PANELS (Continued) 2-249

2. **Position panel (3)** on ramp (2).

WARNING

Primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

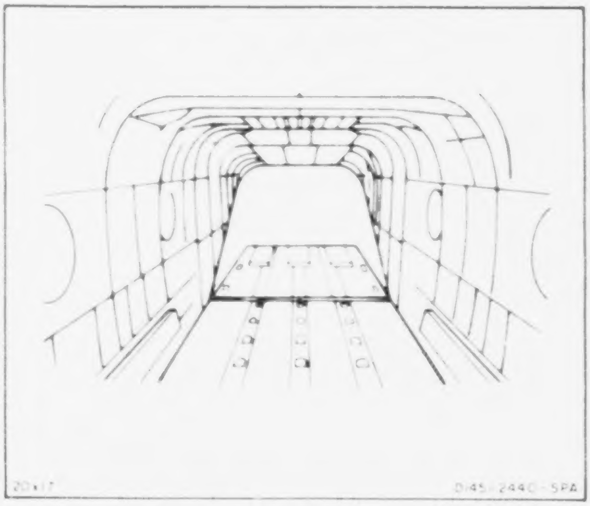
3. Spray eight screws (4) with primer (E291). **Install screws** wet with primer in adapter (5). Wear gloves (E186).
4. **Install 53 bolts (6)** and washers (7) in panel (3).
5. **Install nine bolts (8)** and washers (9).



FOLLOW-ON MAINTENANCE

Right cargo ramp extension folded (Task 2-255).

Cargo ramp raised (TM 55-1520-240-T).



END OF TASK

2-250 RAMP MINOR DAMAGE REPAIR 2-250

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer

References:
Task 2-12
Task 2-254

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Burnish nicks and scratches. Do not exceed 10 percent of material thickness after burnishing (Task 2-12 and 2-254).
2. Stop drill cracks and patch holes. Use criteria in Task 2-12 and do not exceed limits.
3. Damage shall clear bolts, rivets, and radii 3/4 inch minimum.

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-251 RAMP REPARABLE DAMAGE 2-251

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-13
Task 2-254
Task 2-324
Task 2-10

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Repair damage more than minor, but not affecting more than 25 percent of skin area, between boundary members after repair steps (Task 2-13 and 2-241).
2. Seal external repairs watertight (Task 2-324).
3. If damage exceeds minor limits, but not more than one-half the cross section of a web, repair by patching (Task 2-13).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) 2-251.1

INITIAL SETUP

Applicable Configurations:

With **22**

Tools:

- Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
- Pencil Compass
- Straightedge
- Heat Lamp
- Scissors
- Trip Balance, NSN 6670-00-401-7195
- Electric Drill
- Drill Bits
- Shot Bags
- Hypodermic Syringe
- Plastic Squeeze Bottle (E366)
- Vacuum Cleaner
- Craftsman's Knife
- Chisel
- Vacuum Pump

Materials:

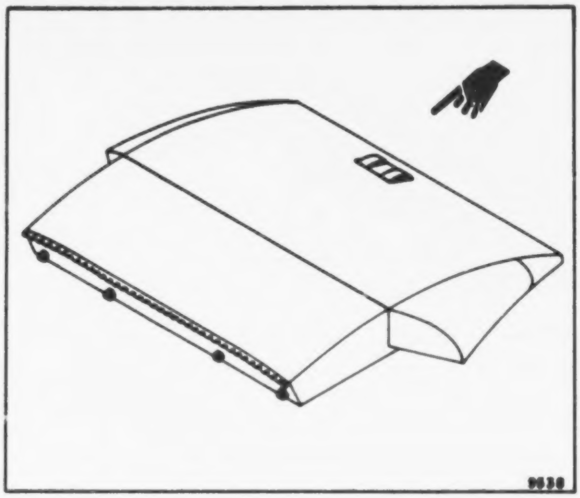
- Abrasive Paper (E6 thru E9)
- Acetone (E20)
- Cloth (E120)
- Peel Ply (E270)
- Gloves (E186)
- Glass Cloth (E130 and E132)
- Teflon-Impregnated Fabric (E170)
- Nomex Honeycomb Core (E150.3 or E150.1)
- Fiberglass Laminate (E168.1)
- Rubber Pad (E318)
- Masking Tape (E388)
- Sealing Tape (E396)
- Nylon Tape (E390.1)
- Aluminum Plate (E71)
- Adhesive (E27, E40, E41, or E47.1)
- Hardener (E194.1)
- Wood Spatula (E424)
- Temperature Indicating Strips (E413)
- Polyethylene Cup (E157)
- Polyvinyl Sheet (E284)

Personnel Required:

- Aircraft Structure Repairer
- Inspector

References:

TM 55-1520-240-23P



Equipment Condition:

- Off Helicopter Task
- Cargo Door Removed (Task 2-260)

General Safety Instructions:

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

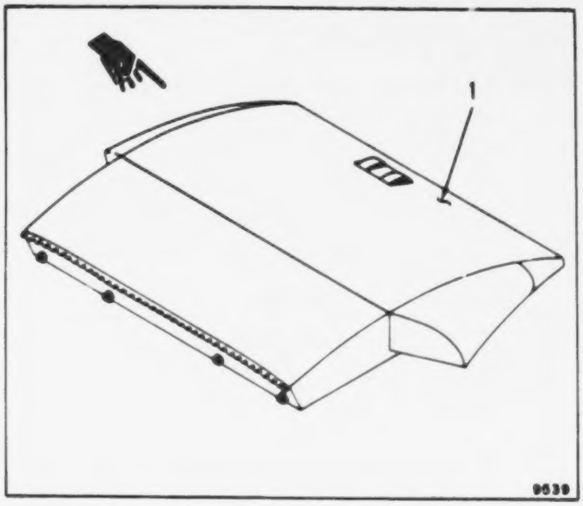
Adhesives (E27, E40, E41, and E47.1) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

1. Repair of composite cargo ramp skin (1) includes the following procedures:

Damage	Steps
Surface Abrasion	2-9
Bond Void (to 2 Square Inches)	10-20
Bond Void (Over 2 Square Inches)	21-44
Puncture Through One Skin and Core (to 1 Square Inch)	45-56
Puncture Through One Skin and Core (Over 1 Square Inch)	57-61
Puncture Through Both Skins and Core (to 1 Square Inch)	62-73
Puncture Through Both Skins and Core (Over 1 Square Inch)	74-87



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

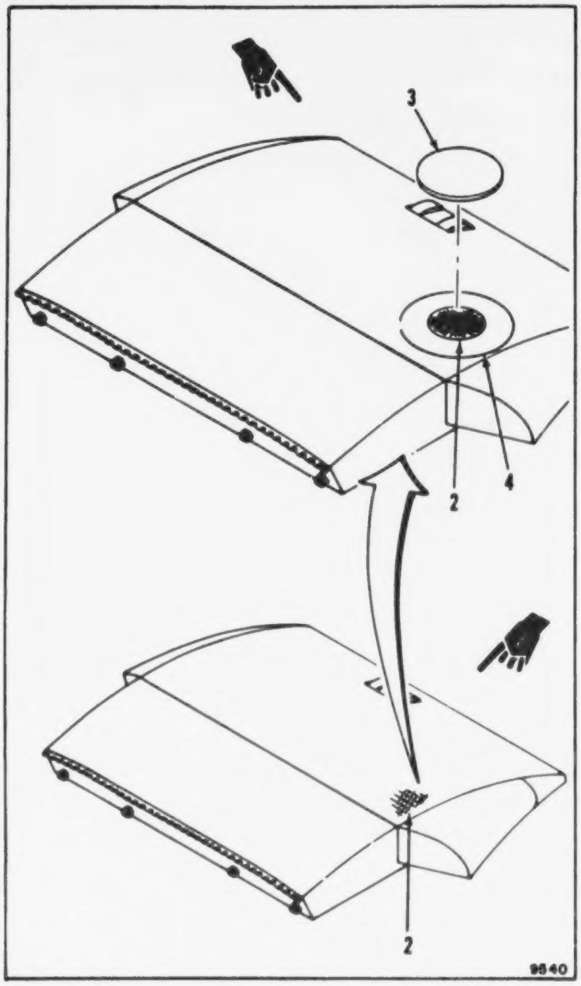
SURFACE ABRASION

2. **Outline area of damage (2)** with circle or oblong. Use pencil compass and straightedge.
3. Cut a piece of fiberglass laminate (E168.1) (3) large enough to overlap outline of damaged area (2) by 1.0 inch in all directions.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

4. **Remove finish** down to primer from an area around damage (2) 1.5 inches larger in all directions than damage. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
5. **Clean area of finish removal (4).** Use clean cloth (E120) damp with acetone (E20). Wipe area dry with a clean cloth. Repeat until there is no residue on dry cloth.
6. **Prepare adhesive mixture.** (Refer to steps 88. thru 91.) Apply coat of adhesive to area of finish removal (4).
7. **Remove protective film** from both sides of laminate piece (3). Carefully pull at right angle to direction of fibers.
8. Apply coat of adhesive to underside of laminate piece (3). Center piece over damage (2) and press down.
9. **Bond and cure repair.** (Refer to steps 92. thru 104.)



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

BOND VOID (TO 2 SQUARE INCHES)

10. **Determine extent of void (5)** by tapping area with coin. Outline area of void with circle or oblong. Use pencil compass and straightedge.

NOTE

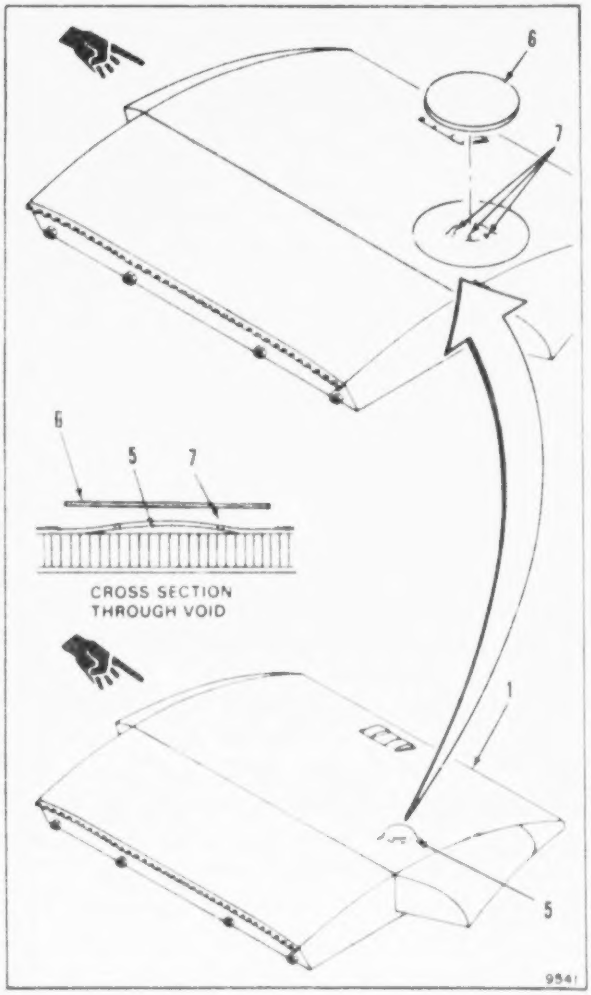
If area of void is greater than 2 square inches, go to step 40.

11. Cut a piece of fiberglass laminate (E168.1) (6) large enough to overlap outline of void (5) by 1.0 inch in all directions.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

12. **Remove finish** down to primer from an area 1.5 inches larger in all directions than outline of void (5). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
13. **Drill several small holes (7)** through void (5) near edge. Use a number 30 or 40 drill.
14. **Clean area** with a clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth.
15. **Prepare mixture of adhesive.** (Refer to steps 88. thru 91.) **Inject adhesive into void (5)** through holes (7) until void is full. Use hypodermic syringe (E380).
16. Cover holes (7) with tape (E390.1). Turn cargo ramp (1) over to prevent adhesive from running into core.
17. **Press down firmly on void (5).** Let excess adhesive squeeze out through holes (7).
18. **Remove protective film** from both sides of laminate piece (6). Carefully pull at right angle to direction of fibers.
19. Apply coat of adhesive to underside of laminate piece (6). Center piece over void (5) and press down.
20. **Bond and cure repair.** (Refer to steps 92. thru 104.)



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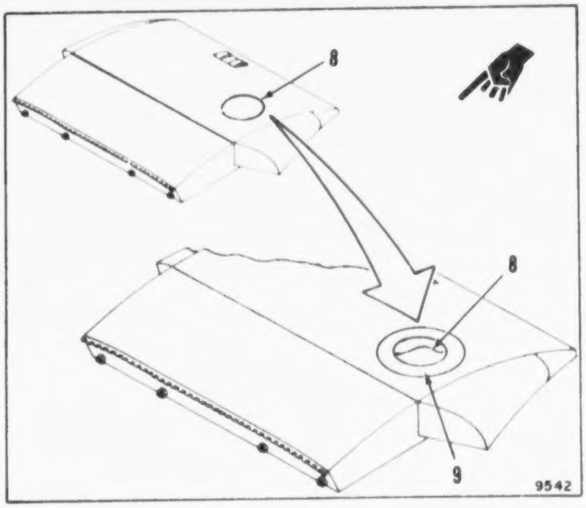
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

BOND VOID (OVER 2 SQUARE INCHES)

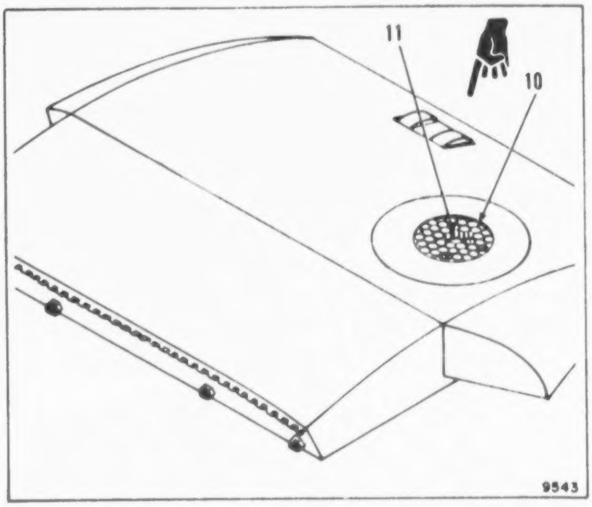
21. **Determine extent of void (8)** by tapping area with coin. **Outline area** of void with a circle or oblong. Use pencil compass or straightedge.



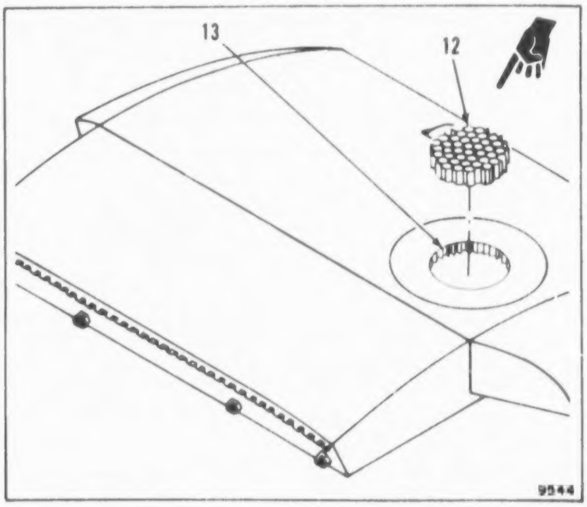
NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

22. **Remove finish** to primer from an area 1.5 inches larger in all directions than outline (9). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).



23. **Cut away unbonded skin.** Use craftsman's knife.
24. **Examine exposed core material (10).** If core is not damaged, clean the core and surrounding area with clean cloths (E120) damp with acetone (E20). Wipe dry with clean dry cloth. Go to step 33.
25. **If core (10) is damaged, cut out core to layer of adhesive on opposite skin (11).** Use craftsman's knife and chisel. Be careful not to damage skin.
26. Roughen surface of adhesive on opposite skin (11) to remove gloss.



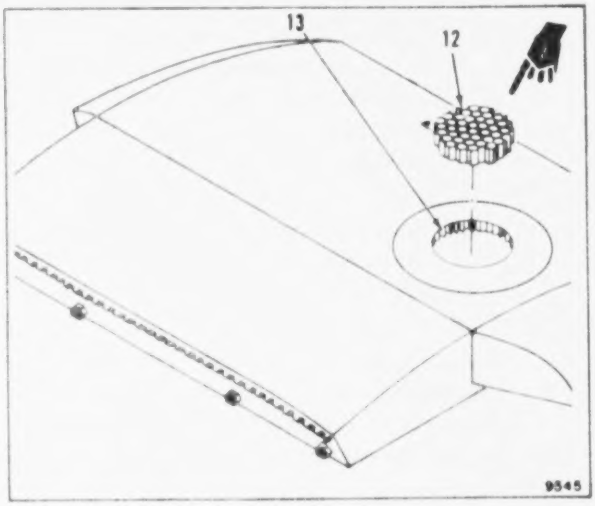
NOTE

Core material must be clean and dry for adhesive to hold.

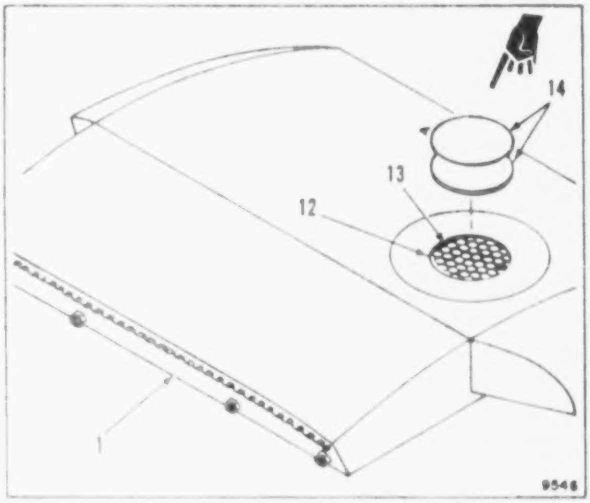
27. **Cut core plug (12)** in shape of cavity (13) but 0.125 inch larger all around. Use core material (E150.3 or E150.1).
28. **Fit core plug (12)** into cavity (13) to check fit.

GO TO NEXT PAGE

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1



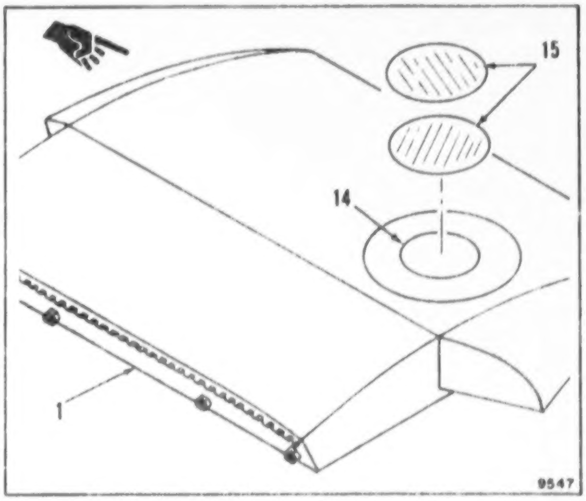
29. **Remove plug (12).**
30. **Clean cavity (13),** surrounding area, and core plug (12). Use a vacuum cleaner and a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
31. **Prepare mixture of adhesive.** (Refer to steps 88. thru 91.) Apply coat of adhesive to sides and bottom of cavity (13).
32. **Apply** coat of **adhesive to** sides and bottom of **core plug (12).** Set plug in cavity (13).



33. Cut two pieces of fiberglass laminate (E168.1) (14) to fit in cavity (13) over core (12).
34. Check that pieces (14) fit flush with ramp (1). Remove pieces.
35. **Remove protective film** from both sides of two laminate pieces (14). Carefully pull at right angle to direction of fibers.
36. Prepare mixture of adhesive. (Refer to steps 88. thru 91.)
37. Coat underside of one piece (14) with adhesive. Press piece against plug (12) in cavity (13).
38. Apply coat of adhesive to top of installed piece (14) and underside of second piece. Install second piece in cavity over first piece. Press against piece to seat it flush with ramp (1).

GO TO NEXT PAGE

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1



39. Cut two pieces of fiberglass laminate (E168.1) (15) large enough to overlap laminate piece (14) 1.0 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are installed.
40. **Apply** coat of **adhesive to** top of **laminate piece (14)** and to surrounding area of ramp (1) within 0.5 inch of finish removal line.
41. **Remove protective film from each side of two fiberglass laminate pieces (15). Carefully pull at right angle to direction of fibers.**

NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be 45 degrees when they are installed.

42. Coat underside of one laminate piece (15) with adhesive. Center piece over repair area and press in place.
43. Apply adhesive to top of installed piece (15) and underside of second piece. Position second piece on first and press in place.
44. Bond and cure repair. (Refer to steps 92. thru 104.)

GO TO NEXT PAGE

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

PUNCTURE THROUGH ONE SKIN AND CORE (TO 1 SQUARE INCH)

45. **Outline area of puncture (16)** with circle or oblong. Use pencil compass and straightedge.
46. **Remove finish** down to primer from an area 1.5 inches larger in all directions than outline around puncture (16). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
47. **Prepare mixture of adhesive.** (Refer to steps 88. thru 91.) **Fill puncture (16)** with adhesive mixture to surface of cargo ramp (1).

CAUTION

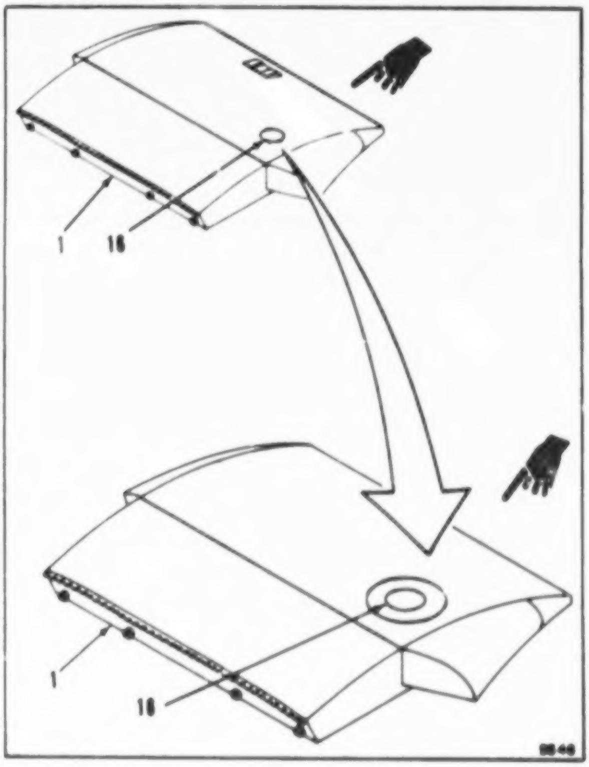
Do not heat ramp surface over 160°F (71°C). Higher temperatures can damage cover.

48. **Cure adhesive** at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours.

49. **Fair cured adhesive** to surface of ramp (1). Use abrasive paper (E9).
50. **Clean area** of finish removal. Use clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.



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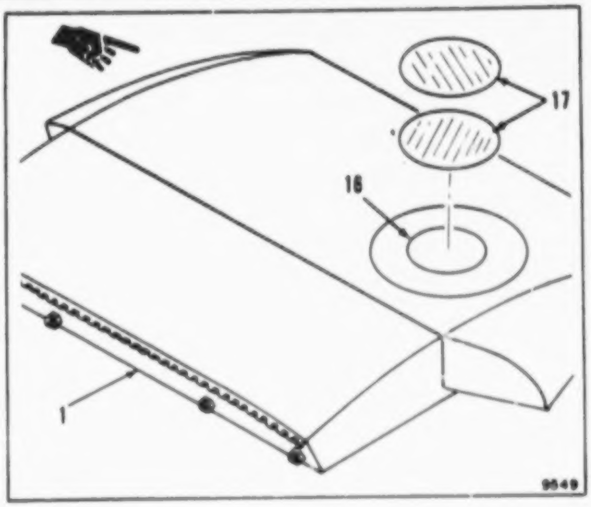
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued)

51. Cut two pieces of fiberglass laminate (E168.1) (17) large enough to overlap puncture (16) 1.0 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are installed.
52. **Apply** coat of **adhesive to** top of **filled puncture (16)** and to surrounding area of cargo ramp (1) to within 0.5 inch of finish removal line.
53. **Remove protective film** from each side of two fiberglass laminate pieces (17). Carefully pull at right angle to direction of fibers.

NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be 45 degrees when they are installed.

54. Coat underside of one laminate piece (17) with adhesive. Center piece over repair area and press in place.
55. Apply adhesive to top of installed piece (17) and underside of second piece. Position second piece on first and press in place.
56. Bond and cure repair. (Refer to steps 92. thru 104.)



2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

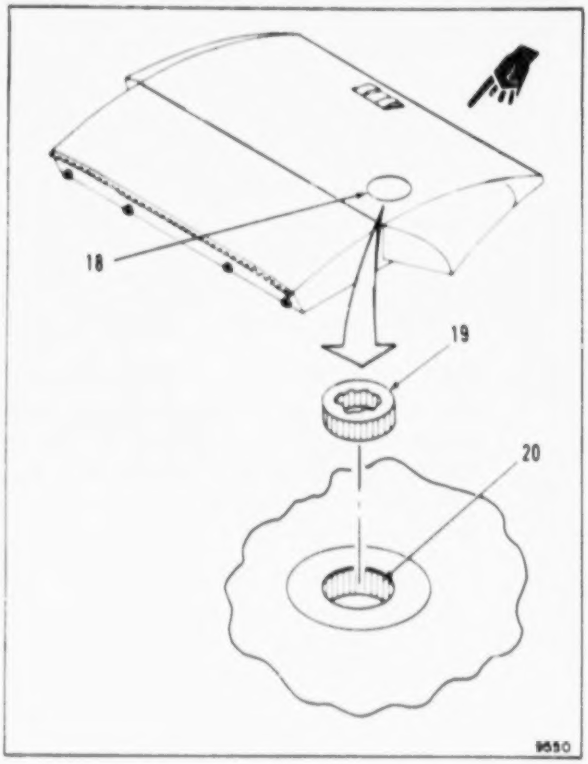
PUNCTURE THROUGH ONE SKIN AND CORE (OVER 2 SQUARE INCHES)

57. **Outline area of puncture (18)** with a circle or oblong. Use pencil compass and straightedge.

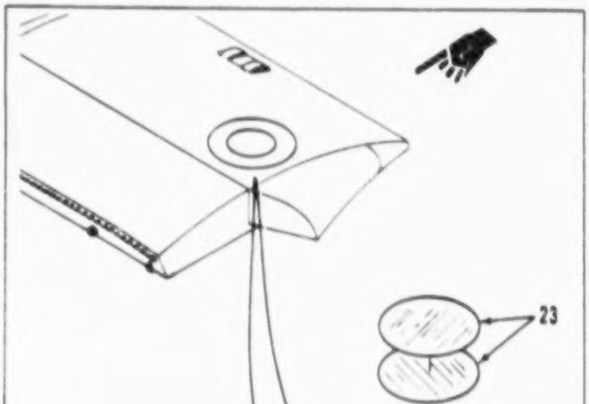
NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

58. **Remove finish** to primer from an area 1.5 inches larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
59. **Cut out punctured skin and core plug (19)** to layer of adhesive on opposite skin (20). Use craftsman's knife and chisel. Be careful not to damage skin.
60. Roughen surface of adhesive on opposite skin (20) to remove gloss.



61. **Complete repair with core plug (21) and fiberglass laminate (22 and 23).** (Refer to steps 27. thru 44.)



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

PUNCTURE THROUGH BOTH SKINS AND CORE (UP TO 2 SQUARE INCHES)

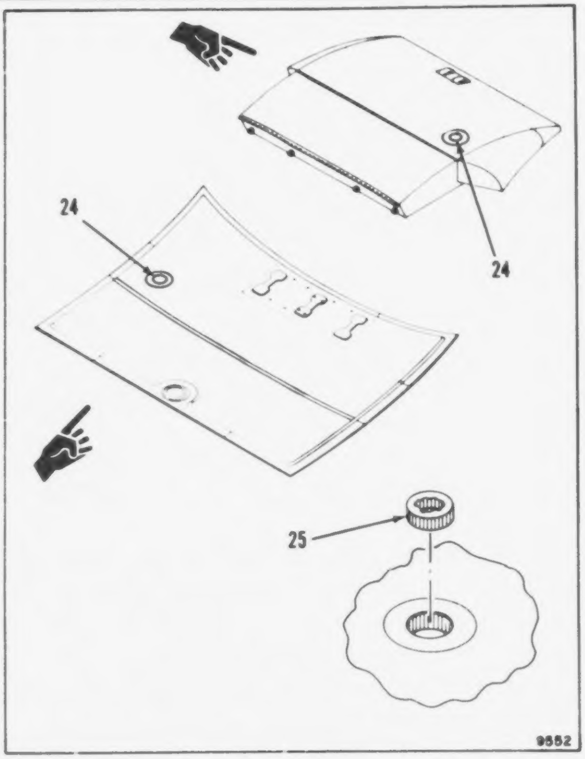
62. **Outline area of puncture (24)** on both sides of ramp (1) with a circle or oblong. Use pencil compass and straightedge.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

63. **Remove finish** down to primer from an area on both sides of ramp (1) 1.5 inches larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).

64. **Cut out punctured skin and core plug (25).** Work from both sides of ramp (1) as needed. Use craftsman's knife.



65. **Cover cutout (26) on top of ramp (1).** Use nylon tape (E390.1) (27).

66. **Prepare mixture of adhesive.** (Refer to steps 88. thru 90.) **Fill cutout (26)** from bottom of ramp to bottom surface (28) with adhesive (29).

CAUTION

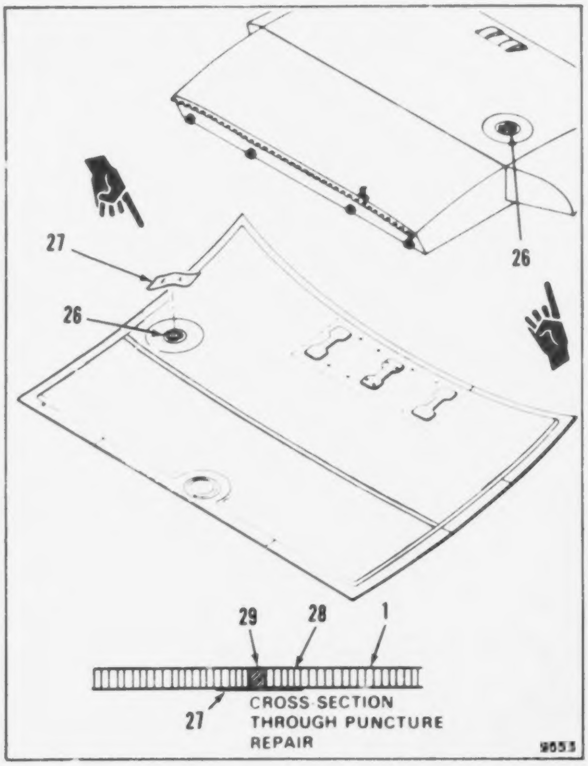
Do not heat ramp surface over 160°F (71°C). Higher temperatures can damage ramp.

67. **Cure adhesive** at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours.

68. Remove tape (27). Fair cured adhesive to surface of ramp (1) on top and bottom. Use abrasive paper (E9).



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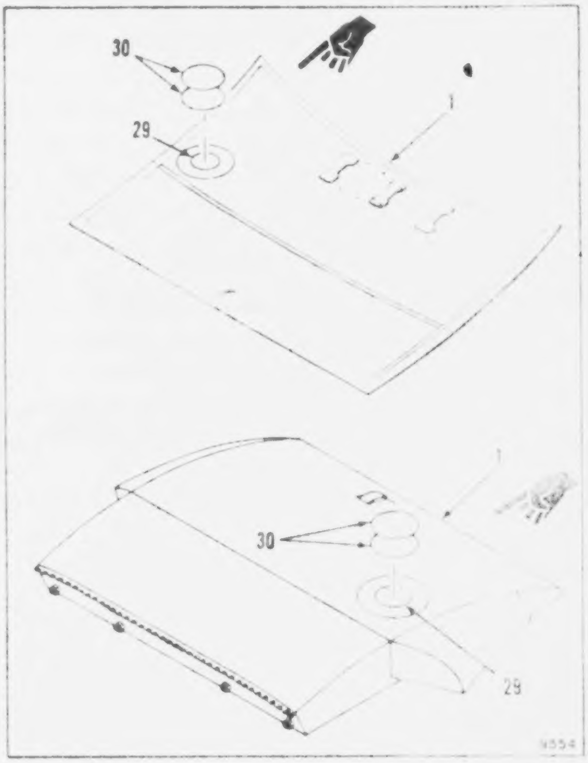
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

69. **Clean area of finish removal** on both sides of ramp (1). Use clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.
70. **Cut two pieces of fiberglass laminate (E168.1) (30)** for each side of repair large enough to overlap adhesive (29) 1.0 inch in all directions.
71. **Prepare new mixture of adhesive.** (Refer to steps 88. thru 91.)
72. **Cover each side of puncture repair** as follows:
    a. Apply a coat of adhesive to cured adhesive (29) and area of finish removal.
    b. **Remove protective film from each side of two fiberglass laminate pieces (30). Carefully pull at right angle to direction of fibers.**
    c. Center one piece (30) over repair. Press down against ramp (1).
    d. Apply adhesive over installed piece (30). Position second piece on installed piece so that fiber orientation between pieces is 45 degrees. Press down against installed piece.
73. **Bond and cure repair.** (Refer to steps 92. thru 104.)



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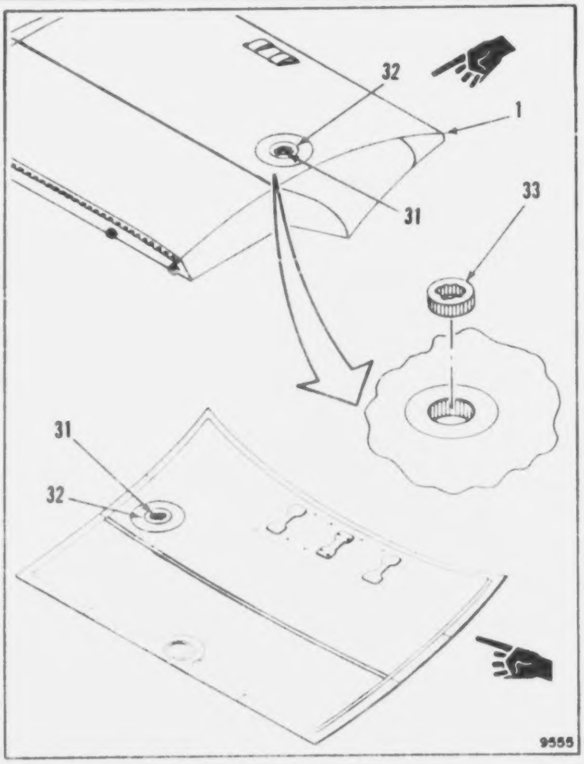
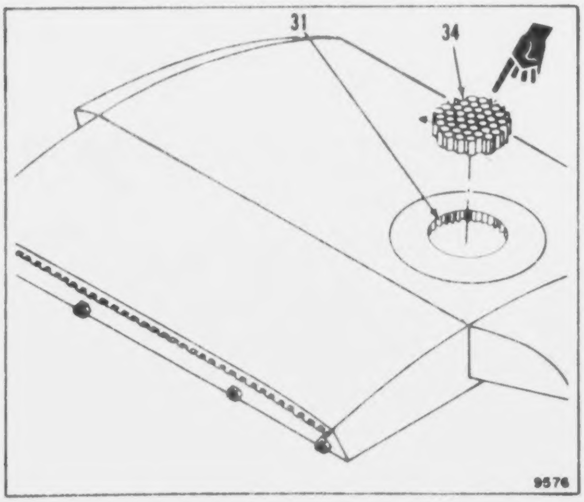
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

PUNCTURE THROUGH BOTH SKINS AND CORE (OVER 1 SQUARE INCH)

74. **Outline area of puncture (31)** on both sides of ramp (1) with a circle or oblong. Use pencil compass and straightedge.
75. **Remove finish** from an area **on both sides** of ramp (1) 1.5 inches larger in all directions than puncture outline (32). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
76. **Cut out punctured skin and core plug (33).** Work from both sides of ramp (1) as needed. Use craftsman's knife.



77. **Cut new core plug (34)** in shape of cutout (31) but 0.125 inch larger all around. Use core material (E150.3).
78. **Fit core plug (34)** into cutout (31).



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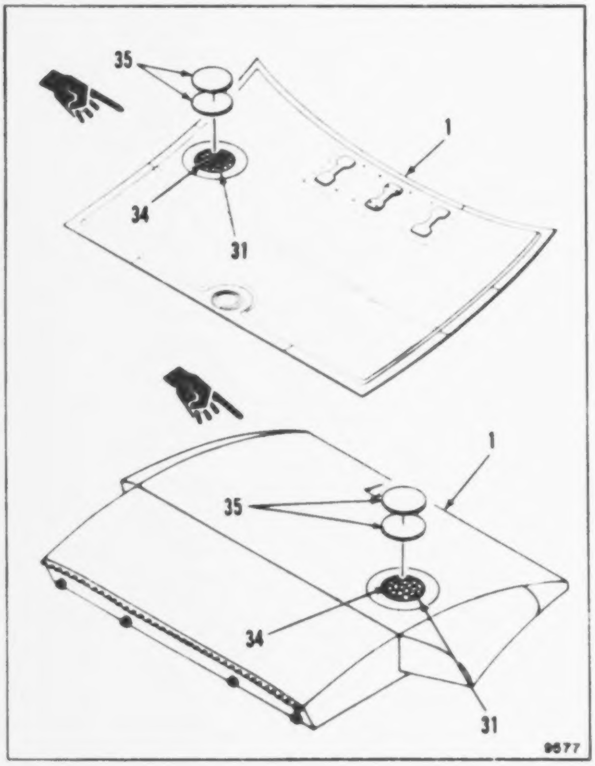
2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

79. **Cut two pieces of fiberglass laminate (E168.1) (35)** to fit cutout (31) at top and bottom of ramp (1).
80. Check that pieces of laminate (E168.1) (35) fit against installed core plug (34) flush with ramp (1) on both sides. Remove laminate and plug.



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

81. **Cut two pieces of fiberglass laminate (E168.1) (36)** for each side of ramp (1) large enough to overlap cutout (31) 1.0 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are in position.

82. **Clean cutout (31)** and surrounding area, core plug (34), and laminate (35). Use clean cloths (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.

83. **Prepare mixture of adhesive.** (Refer to steps 88. thru 91.)

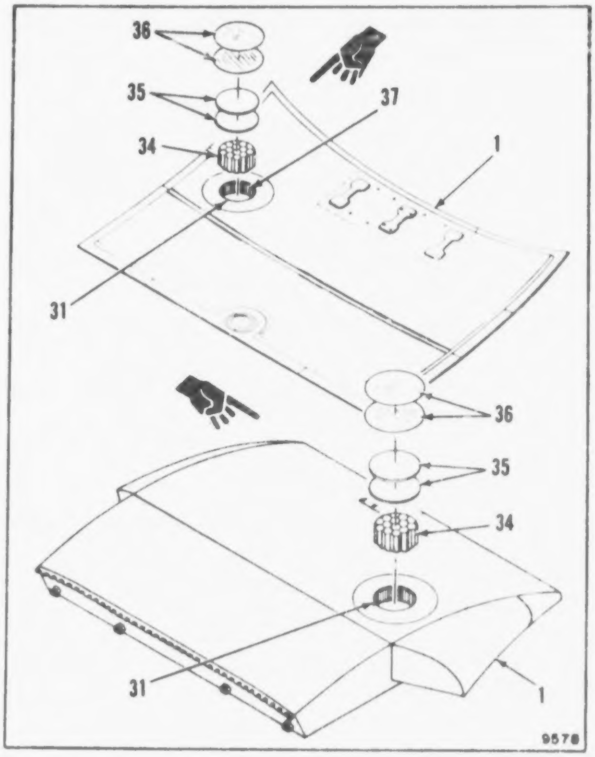
84. **Apply coat of adhesive** to sides of core plug (34). **Set plug in cutout (31)** flush with surrounding core (37). **Align matchmarks, if applicable.**

85. Install laminate pieces (35) over core (34) on each side of ramp (1) as follows:

    a. **Remove protective film** from each side of two fiberglass laminate pieces (35). Carefully pull at right angle to direction of fibers.

    b. Apply a coat of adhesive to underside of one installed piece (35). Press piece against plug (34).

    c. Apply coat of adhesive to top of installed piece (35) and underside of second piece. Press against second piece to firmly seat flush with surrounding skin of ramp (1).



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

86. **Cover each side of repair** as follows:

    a. Apply coat of adhesive to top of laminate piece (35) and to surrounding area of ramp (1) within 0.5 inch of finish removal line.

    b. **Remove protective film** from each side of two fiberglass laminate pieces (36). Carefully pull at right angle to direction of fibers.

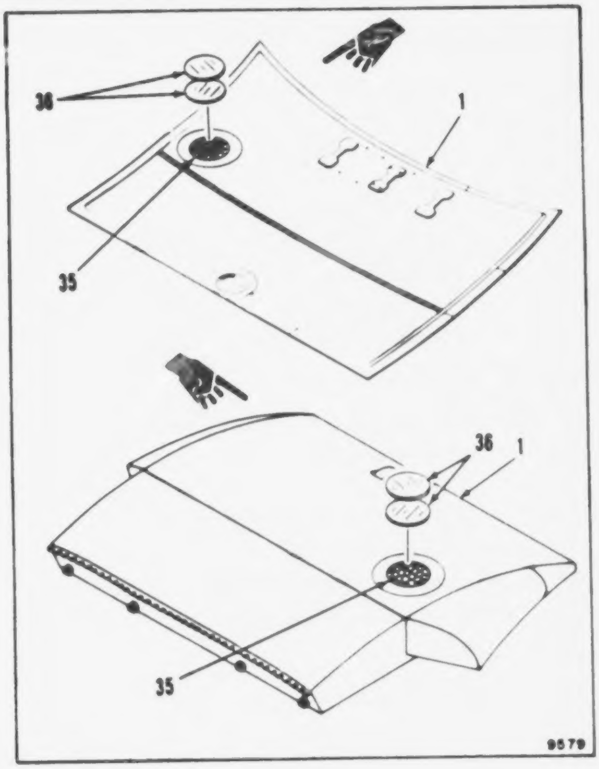
NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be at 45 degrees when the pieces are installed.

    c. **Coat underside** of one laminate piece (36) with adhesive. Center piece over repair area and **press in place.**

    d. Apply **coat** of adhesive to **top of installed piece (36) and underside of second piece.** Position second piece on first piece and **press it in place.**

87. **Bond and cure repair.** (Refer to steps 92. thru 104.)



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

ADHESIVE PREPARATION

88. Use any of three adhesive mixtures for repair of ramp.

NOTE

All three adhesives cure in 2 hours at 150°F to 160°F (66°C to 71°C). A serviceable cure can be achieved at 70°F to 80°F (21°C to 27°C) in 24 hours. Pressure may be removed after 2 hours.

89. Mix adhesive EA9309.3NA (E40 or E41) as follows:

NOTE

Prepackaged adhesive (E40) is preferred. Use adhesive (E41) only if prepackaged kit is not available.

a. Mix tube of adhesive (E40) according to instructions on kit.

b. Prepare adhesive (E41) as follows:

(1) Weigh 100 parts of resin (pink paste) and 23 parts of hardener (blue liquid). Use trip balance.

(2) Mix parts in polyethylene cup (E157) until color is uniform dark pink. Use wood spatula (E424).

NOTE

Working life of adhesive (E41) is 30 minutes.

90. Mix adhesive EC-2216 (E27) as follows:

a. Weigh 7 parts of Part A hardener (grey paste and 5 parts of Part B base (cream paste). Use trip balance.

b. Mix parts in polyethylene cup (E157) until color is uniform medium grey. Use wood spatula.

NOTE

Working life of adhesive (E43) is 1 to 2 hours.

91. Mix adhesive EPON 828 (E47.1) and hardener Versamid 125 (E194.1) as follows:

a. Weigh equal parts of adhesive (light amber resin) and hardener (dark amber resin). Use trip balance.

b. Mix parts in polyethylene cup (E157) until color is uniform. Use wood spatula (E424).

NOTE

Working life of adhesive is 1 hour.

GO TO NEXT PAGE

2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

BOND AND CURE REPAIR

92. **Cover repair (38) with sheet of peel ply (E270 (39) and** sheet of **teflon-impregnated fabric (E170) (40).** Each sheet shall be large enough to overlap repair 1 inch in all directions.

93. **Cover teflon-impregnated fabric (E170) (40) with rubber pad (E318) (41). Cover rubber pad with glass cloth (E132) (42).**

94. **Surround cloth (E132) (42) with** border (43) of **sealing tape (E396).** Keep tape clear of cloth.

95. **Attach tube (44)** to vacuum pump hose. **Wrap end of tube** with two layers of glass cloth (E132) (45). Secure cloth to tube with masking tape (E388) (46).

96. **Place tube (44) on glass cloth (E132) (42). Wrap tube with sealing tape (E396)** where tube crosses border (43) of sealing tape (E396).

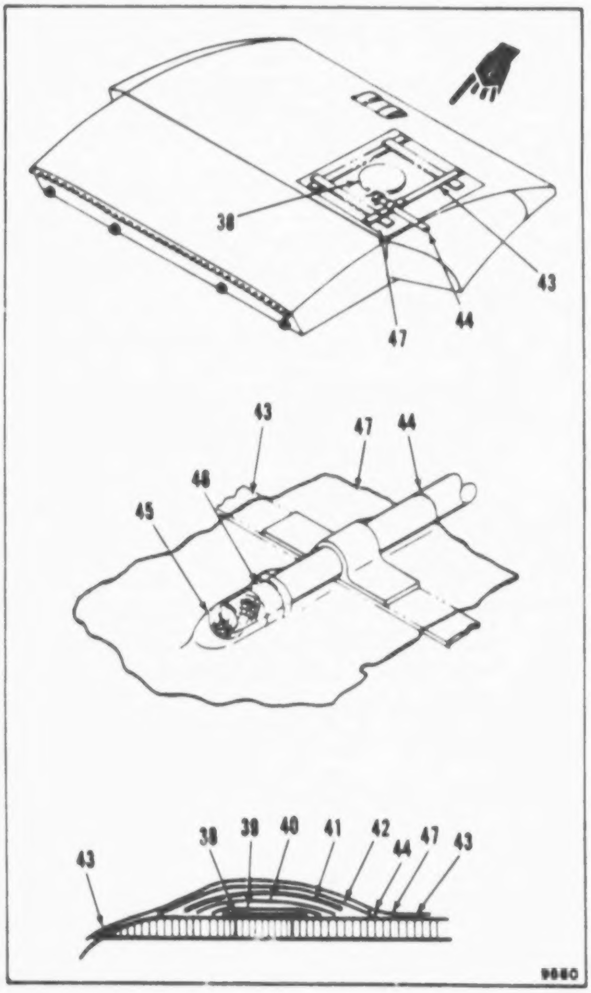
97. Press tube (44) against tape (43) to make an airtight seal. Check that glass cloth (45) on end of tube (44) is in direct contact with layer of glass cloth (42).

98. **Cover area with polyvinyl sheet (E284) (47).** Press sheet smoothly against tape (43) to make an airtight seal.

99. **Start vacuum pump.** Set pump for vacuum of about 30 inches Hg.

100. Shut off pump. Vacuum shall not drop more than 5 inches Hg in 5 minutes. Reposition polyvinyl sheet (47) or add tape (E396) (43) as needed.

101. Start pump again. Maintain vacuum of at least 20 inches Hg throughout adhesive cure.



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2-251.1 REPAIR NOMEX COMPOSITE RAMP SKIN (AVIM) (Continued) 2-251.1

CAUTION

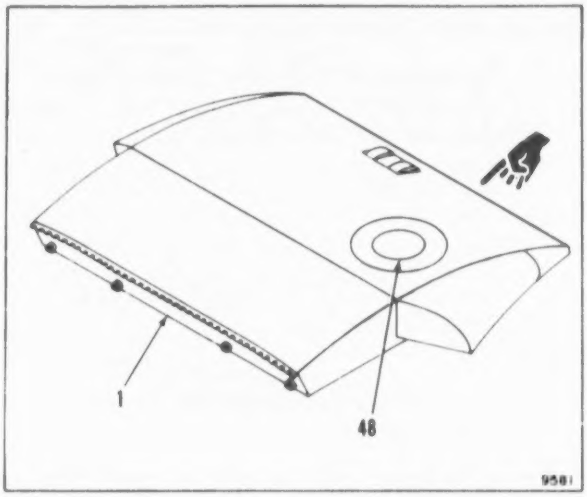
Do not exceed 160°F (71°C) at surface of ramp. Damage to ramp can occur.

102. Cure adhesive at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours. Vacuum may be removed after 2 hours.

103. Turn off vacuum pump. Remove vacuum bagging materials.
104. Chamfer circumference of fiberglass laminate patch (48). Fair adhesive squeezeout to ramp (1) if needed. Use abrasive paper (E7).



INSPECT

FOLLOW-ON MAINTENANCE:

Refinish repaired area (Task 2-353 and 2-356).

END OF TASK

2-252 REMOVE CARGO RAMP 2-252

INITIAL SETUP

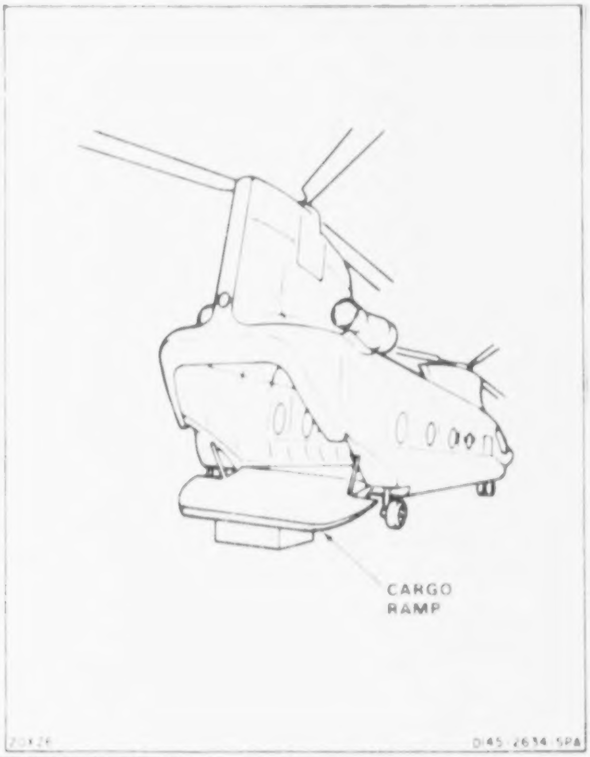
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Tiedown Cargo Strap (SP-4435-2)
Container, Two Quart

Materials:
Cloths (E135)

Personnel Required:
Medium Helicopter Repairer (6)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Ramp Extensions Removed (Task 2-251)
Cargo Ramp Down (TM 55-1520-240-T)
Landing Gear Shock Strut Covers Raised
Padded Support (Tires, Mattress or Similar) Under Cargo Ramp



WARNING

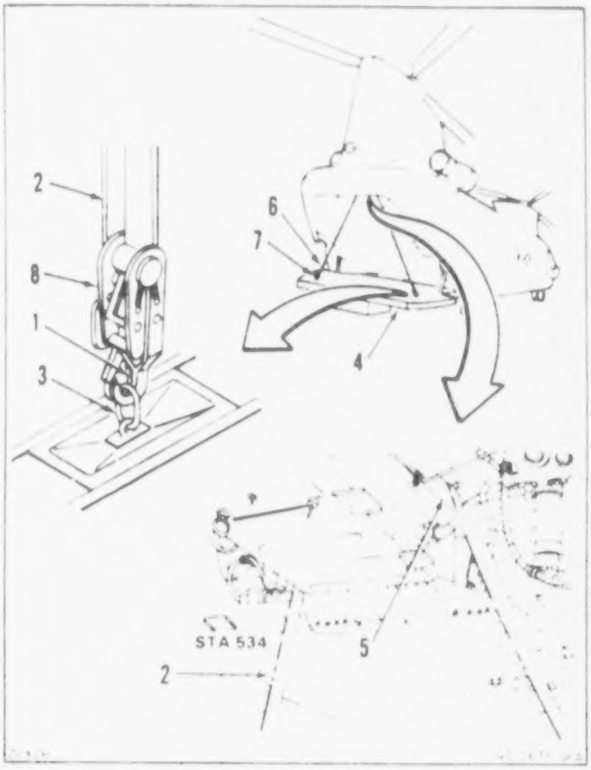
Padded support must be in place before strap is installed. Strap must not support full weight of ramp.

1. Attach ratchet-hook (1) of tiedown strap (2) to tiedown ring (3) on ramp (4).
2. Loop tiedown strap (2) up over sync shaft tunnel (5) at station 534.
3. Attach hook (6) of tiedown strap (2) to tiedown ring (7) on ramp (4).

CAUTION

Do not allow strap to rub against tubing or lines. Damage to tubing or lines could occur.

4. **Take up slack in strap (2) only** with ratchet (8).



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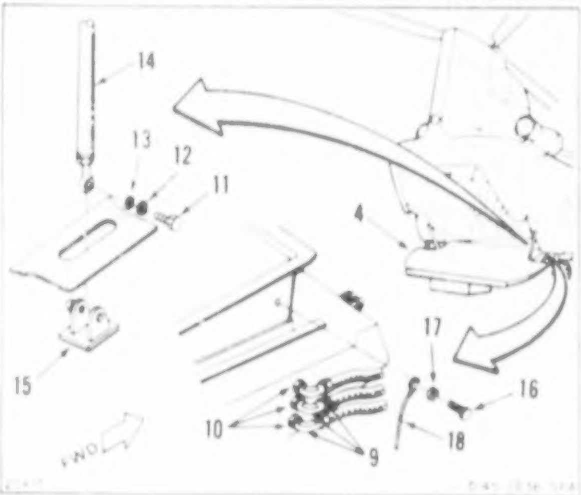
2-252 REMOVE CARGO RAMP (Continued) 2-252

5. **Disconnect three hydraulic hoses (9)** from fittings (10) on ramp (4). Use container to catch fluid. Wipe-up spilled fluid with cloths (E114).

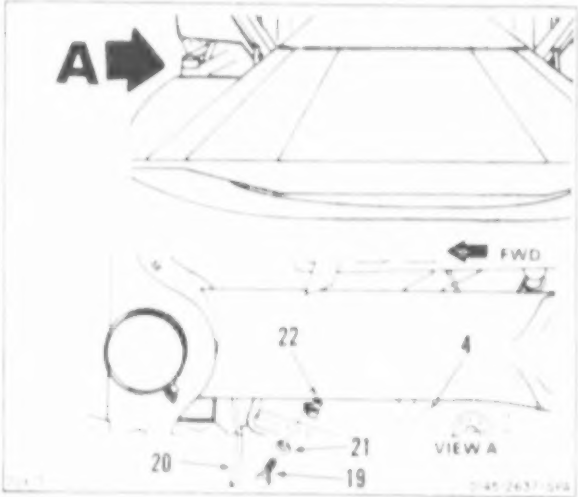
6. **Remove bolts (11)** washers (12), and packing (13) from left and right actuator cylinders (14) and lower attach fittings (15).

7. Compress cylinders (14) to clear ramp (4).

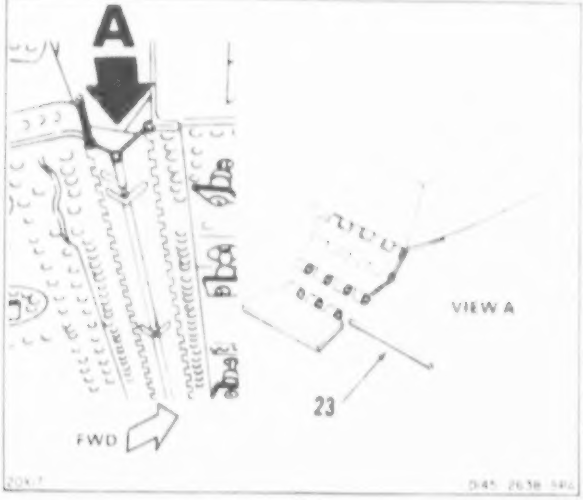
8. **Remove two screws (16)** and washers (17) from left and right electrical leads (18). **Disconnect electrical leads.**



9. **Remove** screw (19), antenna (20), **washer (21) and bracket (22)** from ramp (4).



10. **Remove** lockwire and **left and right aft hinge pins (23).**



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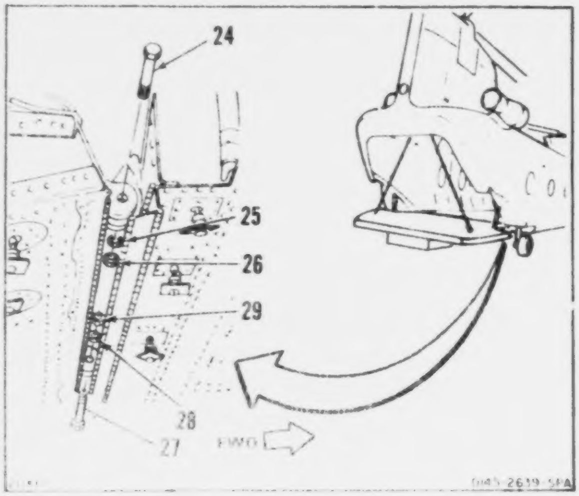
2-252 REMOVE CARGO RAMP (Continued) 2-252

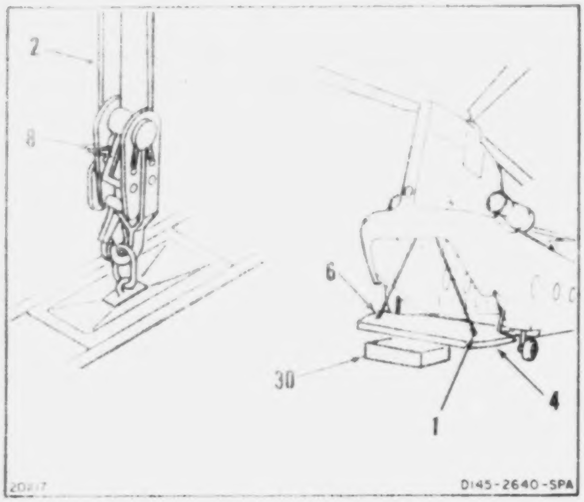

24
25
26
29
28
27
FWD
D145-2639-SPA

11. **Remove left and right outboard hinge bolts (24)** washers (25), and nuts (26).

WARNING

Ramp may shift forward when bolts are removed. Injury to personnel or damage to equipment can occur.

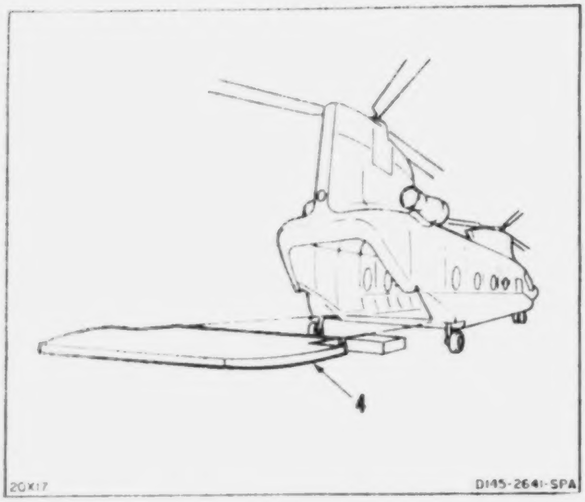
12. **Remove left and right inboard hinge bolts (27),** washers (28), and nuts (29).


2
8
6
30
1
4
20X17
D145-2640-SPA

WARNING

Clear personnel and equipment from area before releasing tension on straps. Injury to personnel or damage to equipment can occur.

13. Ease tension off strap (2) with ratchet (8) until ramp (4) is rested on padded support (30).
14. **Remove hooks (1) and (6).**


4
20X17
D145-2641-SPA

WARNING

Cargo ramp weight is 404 pounds.

15. With aid of helpers, **remove ramp (4).**

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-253 RAMP REPARABLE DAMAGE (AVIM) 2-253

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-13
Task 2-254

Equipment Configuration:
As Required

General Safety Instructions:
As Required

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1. If damage is more than 25 percent of area of skin between boundary members, but does not affect entire skin panel, repair by insertion (Task 2-13 and 2-254).
2. If damage affects more than one-half the cross section of a web, repair by insertion (Task 2-13).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

best copy available

2-254 REPAIR RAMP 2-254

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

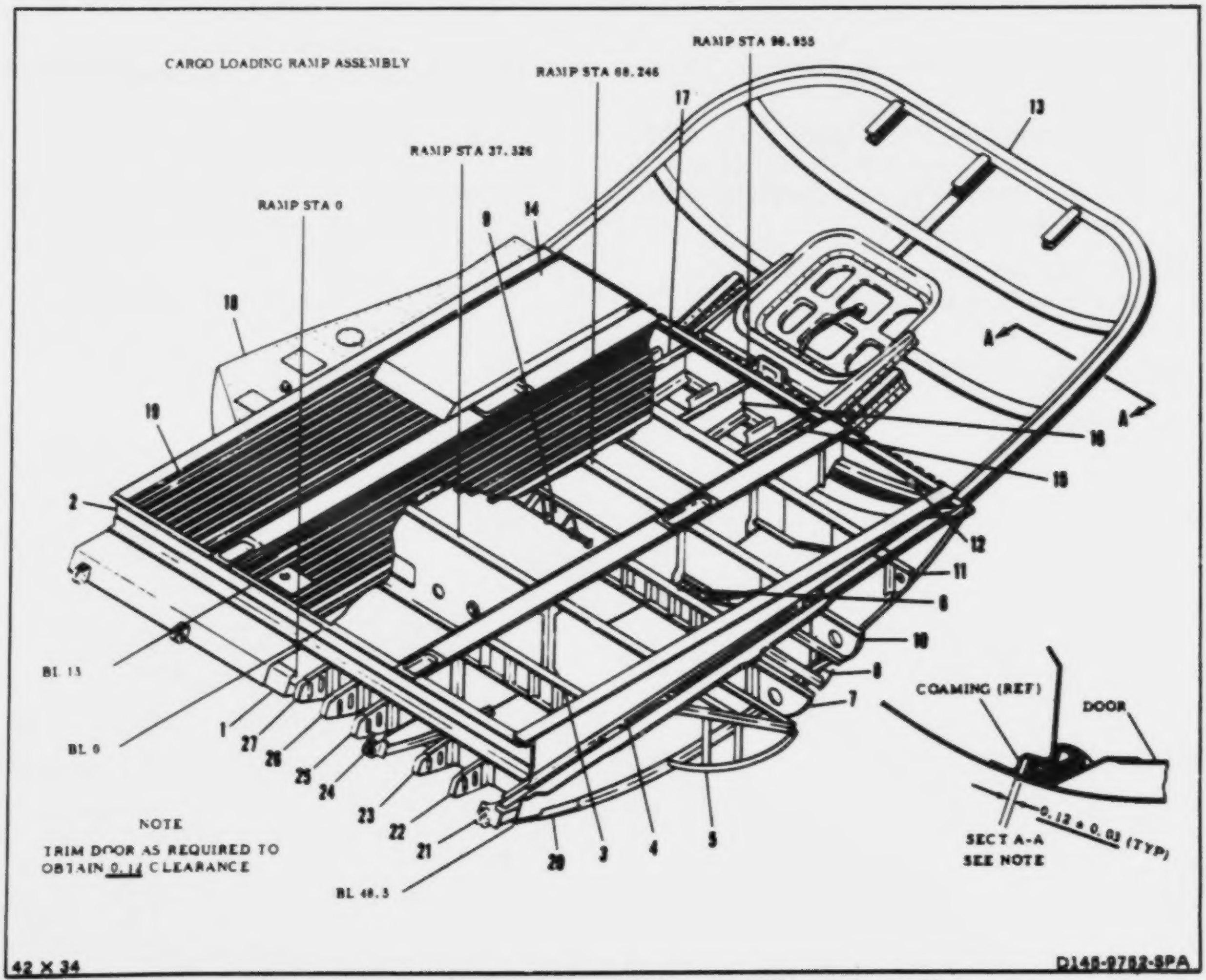
Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Aircraft Inspector

References:
TM 55-1500-204-25/1
Task 2-250
Task 2-251
Task 2-253
Task 2-10
Task 2-13

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. The cargo loading ramp assembly consists of aluminum alloy skin, formers, beams, and flooring.
2. Repair classifications are minor (Task 2-250), reparable (Task 2-251), and reparable (AVIM) (Task 2-253).


CARGO LOADING RAMP ASSEMBLY
RAMP STA 98.955
RAMP STA 68.246
RAMP STA 37.326
RAMP STA 0
17
13
9
14
18
19
2
A
A
16
15
12
11
6
10
8
7
BL 13
BL 0
1
27
26
25
24
23
22
21
20
3
4
5
BL 48.5
COAMING (REF)
DOOR
0.12 ± 0.03 (TYP)
SECT A-A
SEE NOTE
42 X 34
D145-9752-SPA

NOTE
TRIM DOOR AS REQUIRED TO OBTAIN 0.14 CLEARANCE

Cargo Loading Ramp Assembly Repairs (Sheet 1 of 18)

GO TO NEXT PAGE

2-254 REPAIR RAMP (Continued) 2-254

CARGO LOADING RAMP ASSEMBLY

INDEX NO.	NOMENCLATURE	BUTT LINE	WATERLINE	STATION	SHEET REF.
1	FORMER	48 50 RH TO 48 50 LH	RAMP 1 50	FUSELAGE 488 33	7 AND 8
2	FORMER	48 50 RH TO 48 50 LH	RAMP 9 50	RAMP 10 077	7 AND 8
3	BEAM	20 0 TO 44 0 RH AND LH	RAMP 9 50	RAMP 23 846	12 AND 13
4	FORMER	44 0 TO 48 5 RH AND LH	RAMP 3 50	RAMP 26 30	7 AND 8
5	FORMER	48 50 TO 66 0 RH AND LH	RAMP 4 75	RAMP 37 526	7 AND 8
6	BEAM	20 0 TO 44 0 RH AND LH	RAMP 9 5	RAMP 52 926	12 AND 13
7	FORMER	48 5 TO 64 0 RH AND LH	RAMP 5 25	RAMP 53 04	9 AND 11
8	FORMER	48 5 TO 61 75 RH AND LH	RAMP 6 50	RAMP 60 63	9 AND 11
9	GATE	44 0 RH TO 44 0 LH	RAMP 0 25	RAMP 68 246	16 AND 17
10	FORMER	59 23 RH TO 59 23 LH	RAMP 9 50	RAMP 68 246	9, 10, AND 11
11	FORMER	53 5 RH TO 53 5 LH	RAMP 9 50	RAMP 83 60	9, 10, AND 11
12	FORMER	50 25 RH TO 50 25 LH	RAMP 10 50	RAMP 98 955	9, 10, AND 11
13	CARGO DOOR	—	—	—	
14	AUXILIARY RAMP	—	—	RAMP 98 955	
15	BEAM	15 00 LH	RAMP 10 40	RAMP 83 60 TO 98 955	14 AND 15
16	BEAM	0 00	RAMP 10 40	RAMP 83 60 TO 98 955	14 AND 15
17	BEAM	15 00 RH	RAMP 10 40	RAMP 83 60 TO 98 955	14 AND 15
18	SKIN	—	—	—	5
19	FLOORING	—	—	—	
20	BEAM	48 50 RH AND LH	RAMP 0 50	RAMP 0 00 TO 98 955	12 AND 13
21	BEAM	44 00 RH AND LH	RAMP 10 50	RAMP 0 00 TO 98 955	14 AND 15
22	BEAM	36 20 RH AND LH	RAMP 1 75	RAMP 0 75 TO 10 00	12 AND 13
23	BEAM	28 60 RH AND LH	RAMP 1 75	RAMP 0 75 TO 10 00	12 AND 13
24	BEAM	20 00 RH AND LH	RAMP 10 50	RAMP 0 00 TO 98 955	14 AND 15
25	BEAM	14 892 RH AND LH	RAMP 1 75	RAMP 0 75 TO 10 00	12 AND 13
26	BEAM	10 642 RH AND LH	RAMP 1 75	RAMP 0 75 TO 10 00	12 AND 13
27	BEAM	3 50 RH AND LH	RAMP 1 75	RAMP 0 75 TO 10 00	12 AND 13

NOTES: A All dimensions are in inches

Cargo Loading Ramp Assembly Repairs (Sheet 2 of 18)

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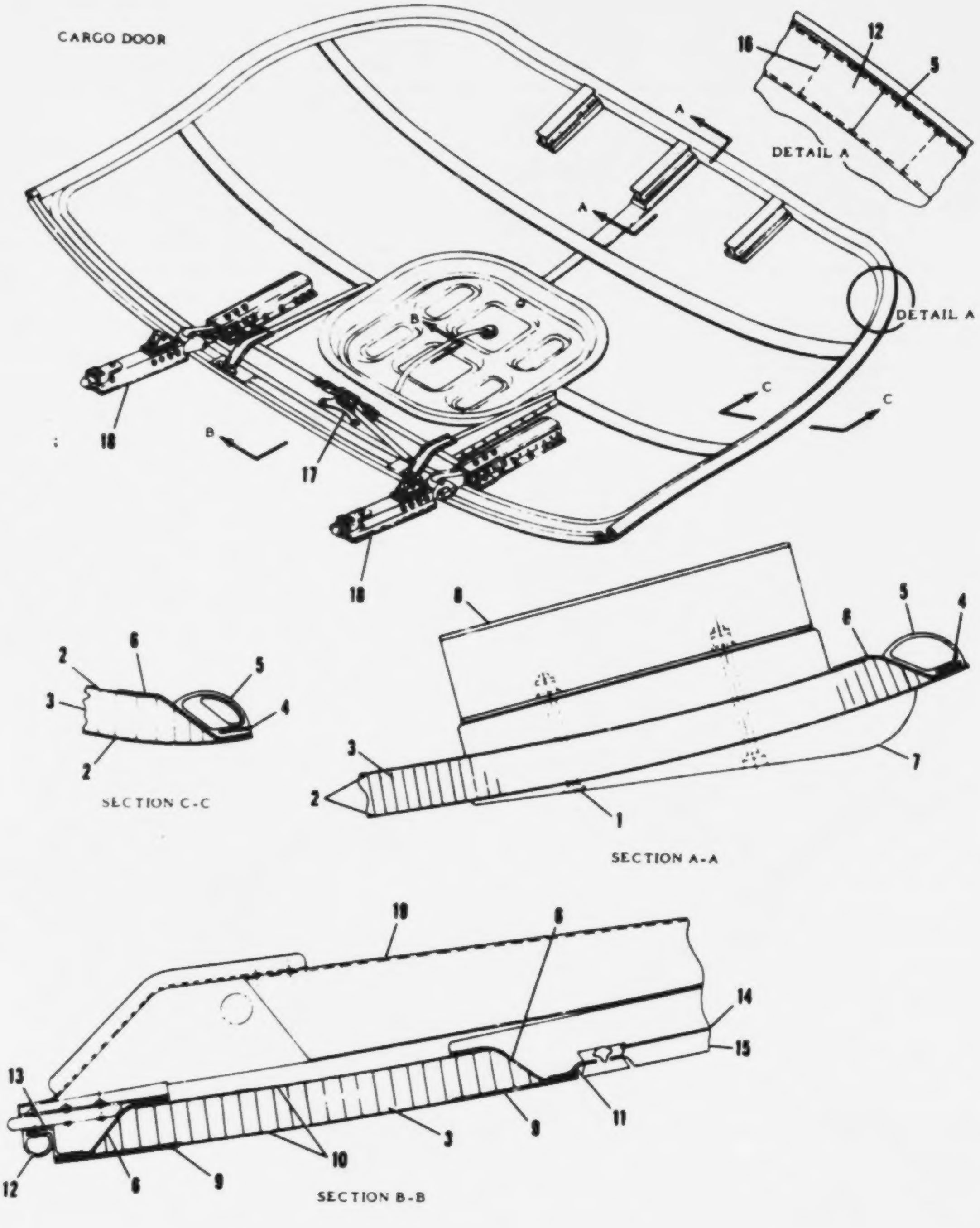
CARGO DOOR
16
12
5
DETAIL A
A
A
B
DETAIL A
C
C
18
B
17
18
8
5
4
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6
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3
4
2
SECTION C-C
3
2
7
1
SECTION A-A
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8
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15
13
11
9
3
10
12
6
9
SECTION B-B
42 X 51
D145-9753-SPA

Cargo Loading Ramp Assembly Repairs (Sheet 3 of 18)

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2-254 REPAIR RAMP (Continued) 2-254

CARGO DOOR

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CORE	0 968 [illegible]		NOTE B AND C		NOTE B
2	SKIN	0 020	2024 T3 CLAD	NOTE B		2-13
3	CORE	0 968 [illegible]		NOTE B		—
4	SEAL STRIP	0 025	[illegible]	0 032	7075 T6 CLAD	NOTE H
5	SEAL	BAC [illegible]		NOTE D		—
6	HINGE MEMBER	[illegible]		NOTE E		—
7	PAD ASSEMBLY			NOTE E		—
8	SPACER	VS90365	6061 T6	NOTE F		—
9	DOUBLER	0 012	7075 T6 CLAD	NOTE B		—
10	SKIN	0 016	7075 T6 BARE	NOTE B		2-13
11	COAMING	0 040	2024 T4 CLAD	0 050	2024 T4 CLAD	NOTE H
12	SEAL	SILICONE RUBBER NO [illegible]		NOTE D		—
13	FORMER	AND [illegible]	[illegible]	0 071	[illegible]	NOTE H
14	FRAME PANEL	0 025	2024 T4 CLAD	0 032	2024 T3 CLAD	NOTE H
15	PANEL	0 020	6061 T6 BARE	0 025	6061 T6 CLAD	NOTE H
16	SEAL SPLICE	SILICONE RUBBER		NOTE G		—
17	EMERGENCY RELEASE	—		NOTE E		—
18	SUPPORT ASSEMBLY	—		NOTE E		—
19	ZEE	0 032	2024 T3 CLAD	0 040	2024T3 CLAD	NOTE H

NOTES:

A All dimensions are in inches

B Component of a bonded assembly, repair using same type material as original. Refer to TM 55-1500-204-25/1

C Used in pad assembly area only

D Seals (5 and 12) are hollow, extruded rubber parts and may be repaired by splicing with sponge rubber, and/or replacing damaged sections. The seal(s) may also be repaired using a piece of the VS80549 seal splice material. When seals are extensively damaged, replace the entire seal.

E Replace with new part same as original

F Replace with original material

G Replace with new seal splice VS80549

H TM 55-1500-204-25/1

Cargo Loading Ramp Assembly Repairs (Sheet 4 of 18)

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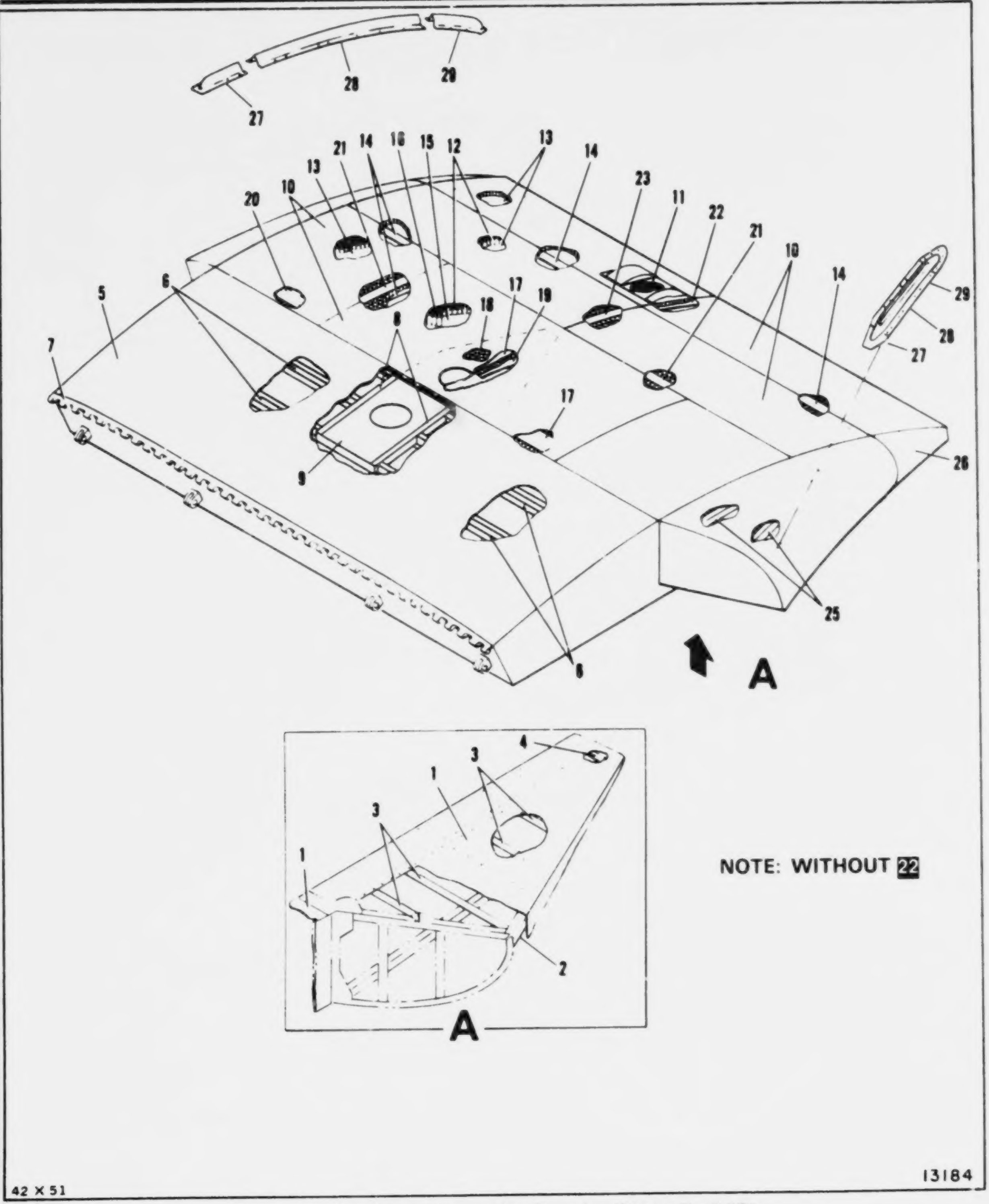
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A
NOTE: WITHOUT 22
42 X 51
13184

Cargo Loading Ramp Assembly Repairs (Sheet 5 of 18)

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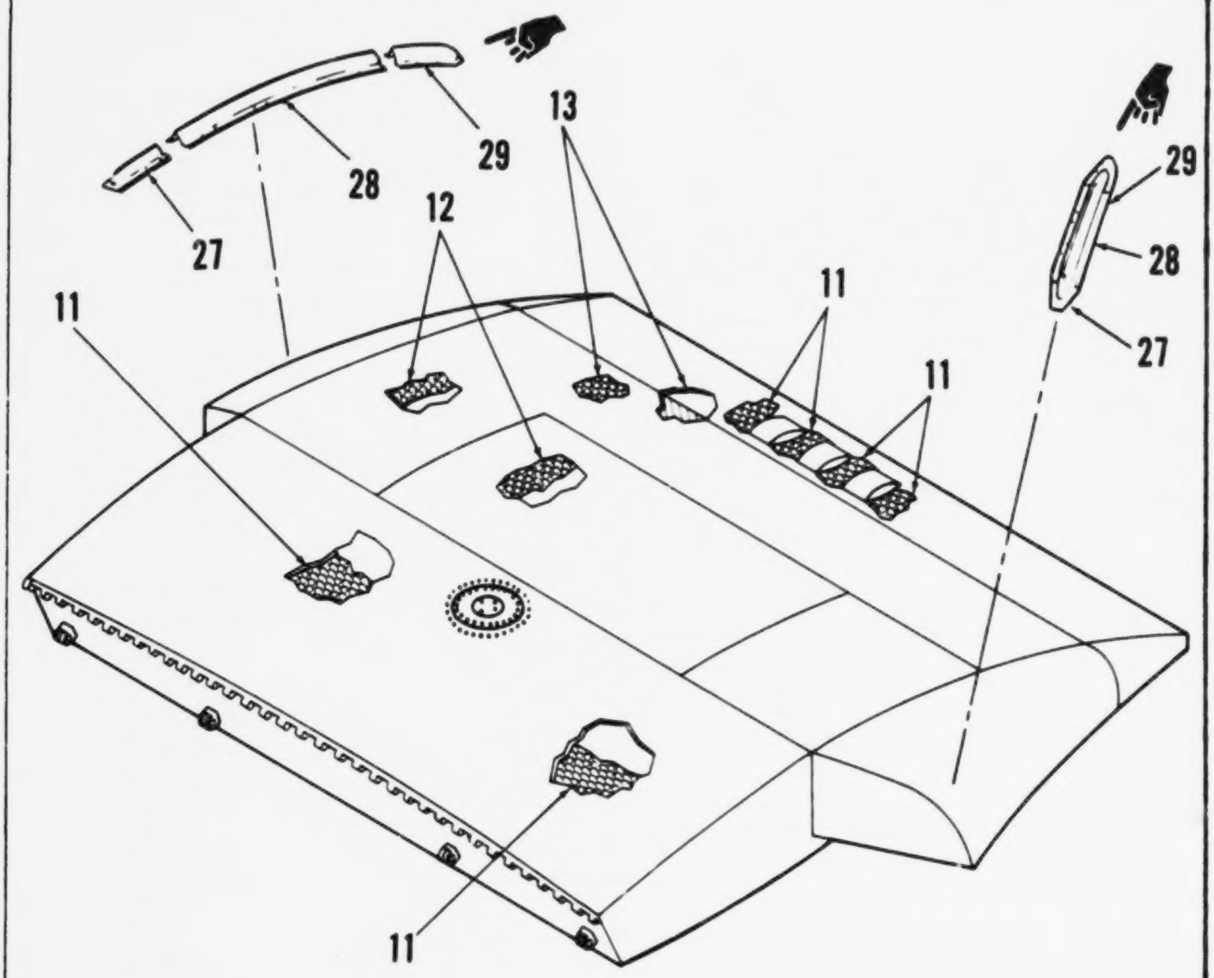
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28
27
11

NOTE: WITH **22**

9582

Cargo Loading Ramp Assembly Repairs (Sheet 5.1 of 18)

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2-254 REPAIR RAMP (Continued) 2-254

RAMP SHELF, RAMP BOTTOM SKINS, AND DIRECTIONAL STABILITY STRAKES
RAMP SHELF

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.025	7075-T6 CLAD	0.032	7075-T6 CLAD	2-13
2	CAP	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	NOTE D
3	STIFFENER	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-29
4	STIFFENER	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-29

RAMP BOTTOM SKINS — RAMP STATION 0.00 TO 37.526, BUTT LINE 48.50 TO 48.50

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
5	SKIN	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-13
6	STIFFENER	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-29
7	HINGE	VS20106-1		NOTE C		—
8	CHANNEL	0.032	7075-T6 CLAD	0.032	7075-T6 CLAD	NOTE D
9	DOUBLER	0.032	7075-T6 CLAD	0.032	7075-T6 CLAD	NOTE D

RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995, BUTT LINE 48.50 INBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
10	OUTER SKIN	0.020	7075-T6 CLAD	0.032	7075-T6 CLAD	—
11	CORE	0.97 6.0-1/4-30N-3003		NOTE B		—
12	CORE	0.97 3.3-1/4-15N-3003		NOTE B		—
13	INNER SKIN	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	—
14	SPLICE PLATE	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	NOTE D
15	INNER SKIN	0.012	7075-T6 CLAD	0.016	7075-T6 CLAD	—
16	CORE	0.97 5.1-1/4-25N-3003		NOTE B		—
17	DOUBLER	0.016	7075-T6 CLAD	0.020	7075-T6 CLAD	NOTE D
18	CORE	0.97 6.0-1/4-30N-30C3		NOTE B		—
19	DOUBLER	0.012	7075-T6 CLAD	NOTE B		—
20	EDGE MEMBER	SCOTCH PLY		NOTE B		—
21	SPLICE PLATE	0.020	7075-T6 CLAD	NOTE B		—
22	SPLICE PLATE	0.016	7075-T6 CLAD	NOTE B		—
23	SPLICE PLATE	0.020	7075-T6 CLAD	NOTE B		—

NOMEX, RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995, BUTT LINE 48.50 INBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL		REPAIR TASK
10	OUTER SKIN	-S- GLASS PREPREG TAPE, TYPE I-1, CLASS A	—	—	2-251.1
11	CORE	0.97 X 30.7 3/16 R X 101.0	—	—	2-251.1
12	CORE	0.97 X 33.3 3/16 R X 101.0	—	—	2-251.1
13	INNER SKIN	-E- GLASS PREPREG FABRIC CLASS II, GRADE 1, TYPE 1581 OR 7781	—	—	2-251.1

RAMP BOTTOM SKINS — RAMP STATION 37.526 TO 98.995, BUTT LINE 48.50 OUTBOARD

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
24	SKIN	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD	2-13
25	STRINGER	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	2-29
26	SKIN	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD	2-13

DIRECTIONAL STABILITY STRAKES

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
27	CENTER STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D
28	NOSE STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D
29	TAIL STRAKE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD	NOTE D

NOTES:
A. All dimensions are in inches.
B. Component part of a bonded assembly. Repair using same type material as original. Refer to TM 55-1500-204-25/1.
C. Replace with same material as original.
D. TM 55-1500-204-25/1.

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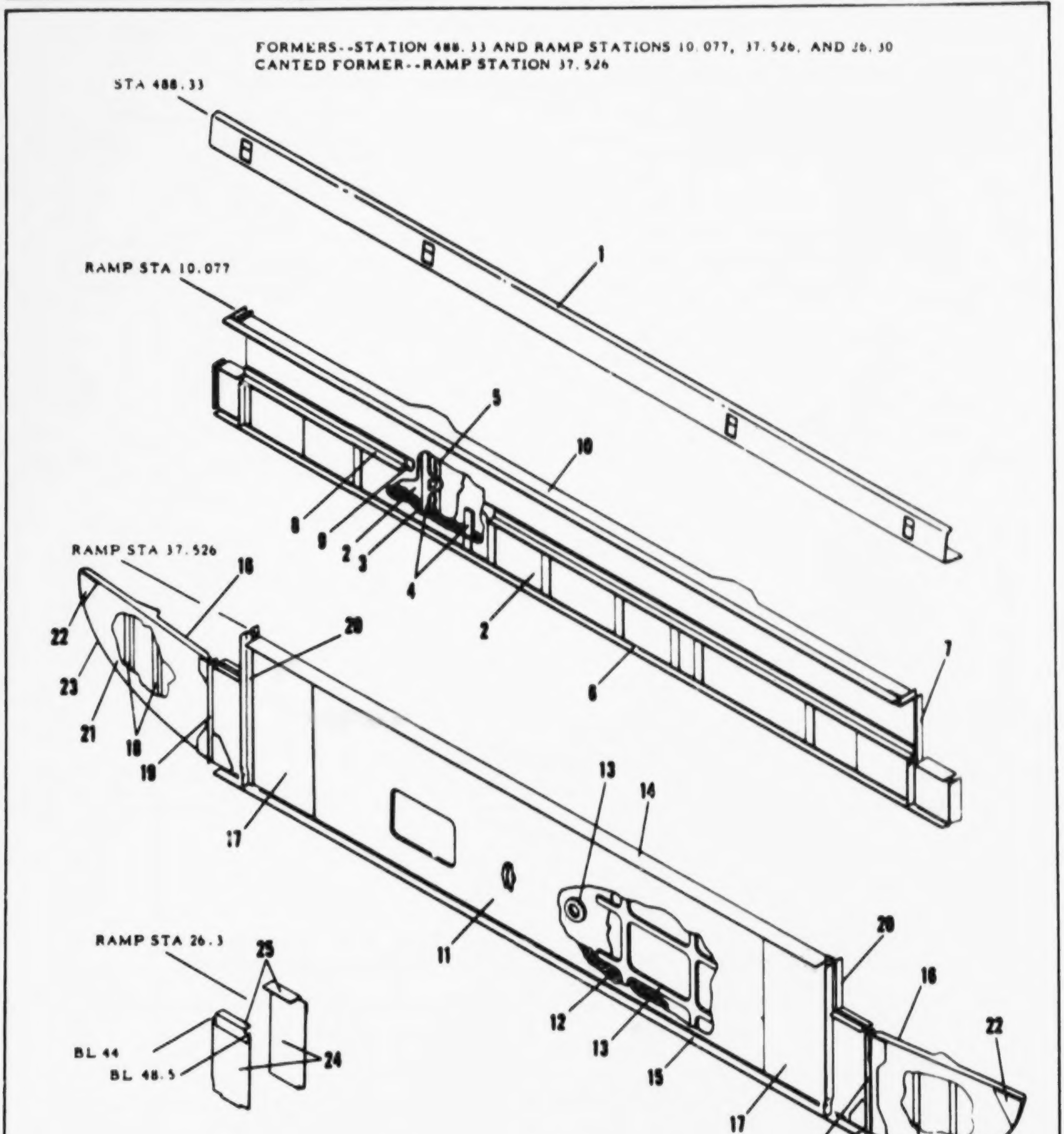
FORMERS--STATION 488.33 AND RAMP STATIONS 10.077, 37.526, AND 26.30
CANTED FORMER--RAMP STATION 37.526
STA 488.33
1
RAMP STA 10.077
5
10
8
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RAMP STA 37.526
16
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21
RAMP STA 26.3
25
BL 44
BL 48.5
24
42 X 51
D145-9755-SPA

Cargo Loading Ramp Assembly Repairs (Sheet 7 of 18)

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2-254 REPAIR RAMP (Continued) 2-254

FORMERS — STATION 488 33 AND RAMP STATIONS 10 077, 37 526, AND 26 30
CANTED FORMER — RAMP STATION 37 526
FORMER — STATION 488 33

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	FORMER	0 050 7075-T6 CLAD	0 050 7075-T6 CLAD	NOTE C

FORMER — RAMP STATION 10 077

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
2	SKIN	0 012 7075-T6 CLAD	NOTE B	—
3	CORE	0 255 2 30-1/4-10N-3003	NOTE B	—
4	FILLER	0 250 7075-T6 CLAD	NOTE B	—
5	STIFFENER	REYNOLDS 5761 7075-T6	0 071 4130	2-29
6	CAP	VS90542 7075-T6	NOTE B	—
7	STIFFENER	AND10133-0701 7075-T6	0 071 4130	2-29
8	STIFFENER	0 025 7075-T6 BARE	0 032 7075-T6 CLAD	2-29
9	STIFFENER	0 012 7075-T6 CLAD	NOTE B	2-29
10	CAP	VS90543 7075-T6	NOTE B	NOTE C

FORMER — RAMP STATION 37 526

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
11	SKIN	0 012 7075-T6 CLAD	NOTE B	—
12	CORE	0 255 2 3 1 4 10N 3003	NOTE B	—
13	FILLER	0 250 7075-T6 BARE	NOTE B	—
14	CAP	VS90303 7075-T6	NOTE B	—
15	CAP	VS90317 7075-T6	NOTE B	—
16	CAP	BAC1503-100037 7075-T6	0 063 4130	NOTE C
17	DOUBLER	0 016 7075-T6 BARE	NOTE B	—
18	STIFFENER	0 040 7075-T6 BARE	0 050 7075-T6 CLAD	2-29
19	ATTACHMENT	BAC1505-100515 7075-T6	NOTE B	—
20	STIFFENER	0 032 7075-T6 BARE	0 040 7075-T6 CLAD	2-29
21	WEB	0 020 7075-T6 CLAD	0 025 7075-T6 CLAD	2-13
22	GUSSET	0 025 7075-T6 CLAD	0 032 7075-T6 CLAD	NOTE C
23	CAP	0 063 7075-T6 CLAD	0 063 7075-T6 CLAD	—

FORMER — RAMP ACTUATOR SUPPORT, RAMP STATION 26 30

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
24	FORMER	0 032 7075-T6 BARE	0 040 7075-T6 CLAD	NOTE C
25	ANGLE	0 032 7075-T6 BARE	0 040 7075-T6 CLAD	NOTE C

NOTES:
A All dimensions are in inches
B Component of sandwich honeycomb structure Repair using same type material as original Refer to TM 55-1500-204-25/1
C TM 55-1500-204-25/1

Cargo Loading Ramp Assembly Repairs (Sheet 8 of 18)

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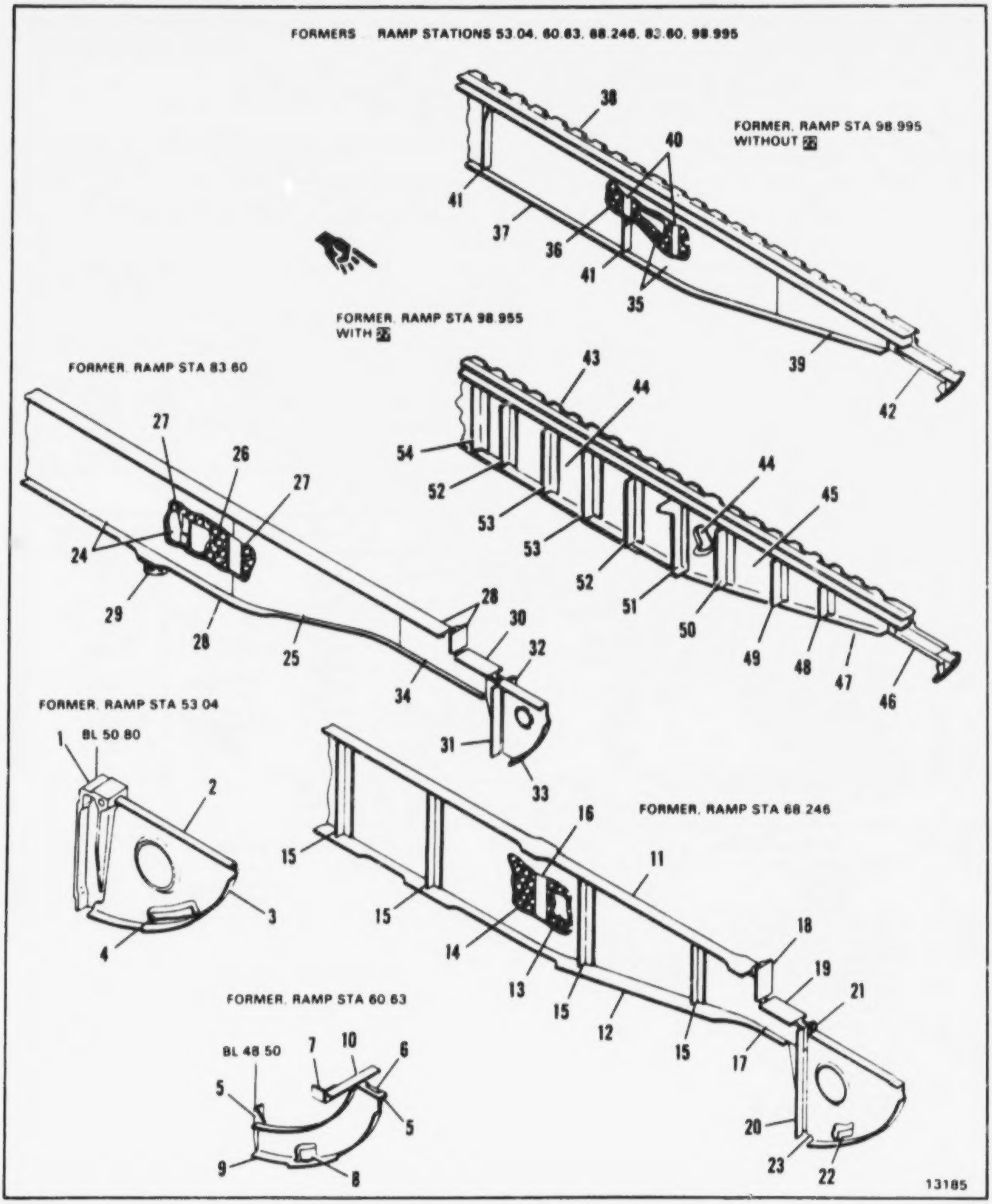
FORMERS — RAMP STATIONS 53.04, 60.63, 68.246, 83.60, 98.995
FORMER, RAMP STA 98.995
WITHOUT ⊠
38
40
41
37
36
41
35
39
42
FORMER, RAMP STA 98.955
WITH ⊠
FORMER, RAMP STA 83.60
43
44
54
52
53
53
52
51
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48
47
46
27
26
27
24
29
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28
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32
34
31
33
FORMER, RAMP STA 53.04
1
BL 50.80
2
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4
16
FORMER, RAMP STA 68.246
15
15
11
14
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FORMER, RAMP STA 60.63
BL 48.50
7
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13185

Cargo Loading Ramp Assembly Repairs (Sheet 9 of 18)

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2-254 REPAIR RAMP (Continued) 2-254

FORMERS — RAMP STATIONS 53.04, 60.63, 68.246, 93.60 AND 98.955

FORMER — RAMP STATION 53.04

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	SUPPORT	2014-T6	NOTE B	—
2	ANGLE	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	NOTE F
3	WEB	0.032 7075-T6 CLAD	0.040 7075-T6 CLAD	2-13
4	ANGLE	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	NOTE F

FORMER — RAMP STATION 60.63

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
5	CLIP	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD	NOTE F
6	FILLER	0.040 2024-T3 CLAD	NOTE C	—
7	CLIP	0.040 2024-T3 CLAD	0.050 7075-T6 CLAD	NOTE F
8	ANGLE	0.050 2024-0-T42	0.050 2024-T3 CLAD	NOTE F
9	FORMER	0.040 2024-0-T42	0.050 2024-T3 CLAD	NOTE F
10	ANGLE	ALCOA 28546 7075-T6	0.050 4130	NOTE F

FORMER — RAMP STATION 68.246

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
11	CAP	VS90302 7075-T6	NOTE D	NOTE F
12	CAP	BAC1505-100511 7075-T6	NOTE D	NOTE F
13	WEB	0.012 7075-T6 CLAD	NOTE D	—
14	CORE	0.255 2.3-1/4-10N-3003	NOTE D	NOTE F
15	STIFFENER	BAC1503-1402 7075-T6	NOTE D	2-28
16	FILLER	0.250 7075-T6 BARE	NOTE D	NOTE F
17	DOUBLER	0.032 7075-T6 BARE	NOTE D	NOTE F
18	CAP	VS90302 7075-T6	NOTE D	NOTE F
19	CAP	VS90317 7075-T6	NOTE D	NOTE F
20	CLIP	ALCOA 61971 7075-T6	0.063 4130	NOTE F
21	CAP	ALCOA 22477 7075-T6	0.050 4130	NOTE F
22	ANGLE	0.050 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE F
23	WEB	0.020 2024-T4 CLAD	0.032 2024-T3 CLAD	—

FORMER — RAMP STATION 83.60

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
24	WEB	0.012 7075-T6 CLAD	NOTE D	2-13
25	WEB	0.016 7075-T6 CLAD	NOTE D	2-13
26	CORE	0.255 3.0-3/8-20N-3003	NOTE D	NOTE F
27	FILLER	0.250 2024-T4	NOTE D	NOTE F
28	CAP	VS90302 7075-T6	NOTE D	—
29	SUPPORT		NOTE E	NOTE F
30	CAP	VS90317 7075-T6	NOTE D	NOTE F
31	CLIP	ALCOA 61971 7075-T6	0.063 4130	NOTE F
32	CAP	ALCOA 22509 7075-T6	0.050 4130	NOTE F
33	WEB	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD	2-13
34	DOUBLER	0.032 7075-T6 CLAD	NOTE D	NOTE F

NOTES:
A All dimensions are in inches.
B Damage for other than minor, replace with new support 114S6804-1 LH or -2 RH.
C Replace with material same as original.
D Component part of a bonded assembly. Repair using same type material as original.
E Damage for other than minor, replace with new support 114S6821-1.
F TM 55-1500-204-25/1

Cargo Loading Ramp Assembly Repairs (Sheet 10 of 18)

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FORMERS — RAMP STATIONS 53.04, 60.63, 68.246, 83.60 AND 98.955
FORMER — RAMP STATION 98.955 WITHOUT 22

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
35	WEB	0.012 7075-T6 CLAD	NOTE B.	—
36	CORE	0.255 3.0-3/8-20N-3003	NOTE B.	NOTE C.
37	CAP	VS90302 7075-T6	NOTE B.	NOTE C.
38	HINGE	VS90560 7075-T6	NOTE B.	—
39	DOUBLER	0.016 7075-T6 CLAD	NOTE B.	NOTE C.
40	FILLER	0.250 2024-T4 BARE	NOTE B.	NOTE C.
41	CLIP	HARVEY 15078 7075-T6	0.063 4130	NOTE C.
42	CLIP	0.050 2024-T4 CLAD	0.063 2024-T3 CLAD	NOTE C.

NOTES: A. All dimensions are in inches.

B. Component part of a bonded assembly. Repair using same type material as original.

C. TM 55-1500-204-25/1.

FORMER — RAMP STA 98.955 WITH 22

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
43	HINGE	VS90560 X .100 7075-T73		NOTE B.
44	WEB	0.050 7075-T6 CLAD	0.063 7075-T6 CLAD	NOTE B.
45	DOUBLER	0.063 7075-T6 CLAD	0.072 7075-T6 CLAD	NOTE B.
46	FILLER	0.040 7075-T6 CLAD	0.040 7075-T6 CLAD	NOTE B.
47	CAP	AND10136-1504 X 87.0 7075-T73	0.0120 301 CRS 1/4H	NOTE B.
48	TEE	AND10136-2001 X 3.4 7075-T73	0.080 301 CRS	NOTE C.
49	TEE	AND10136-2001 X 4.3 7075-T73	0.080 301 CRS	NOTE C.
50	TEE	AND10136-2001 X 5.5 7075-T73	0.080 301 CRS	NOTE C.
51	TEE	AND10136-2007 X 6.5 7075-T73	0.100 301 CRS	NOTE C.
52	TEE	AND10136-2001 X 6.2 7075-T73	0.080 301 CRS	NOTE C.
53	TEE	AND10136-2001 X 6.4 7075-T73	0.080 301 CRS	NOTE C.
54	TEE	AND10136-2001 X 6.4 7075-T73	0.080 301 CRS	NOTE C.

NOTES: A. All dimensions in inches.

B. TM 55-1500-204-25/1.

C. Repair using same type material as original.

Cargo Loading Ramp Assembly Repairs (Sheet 11 of 18)

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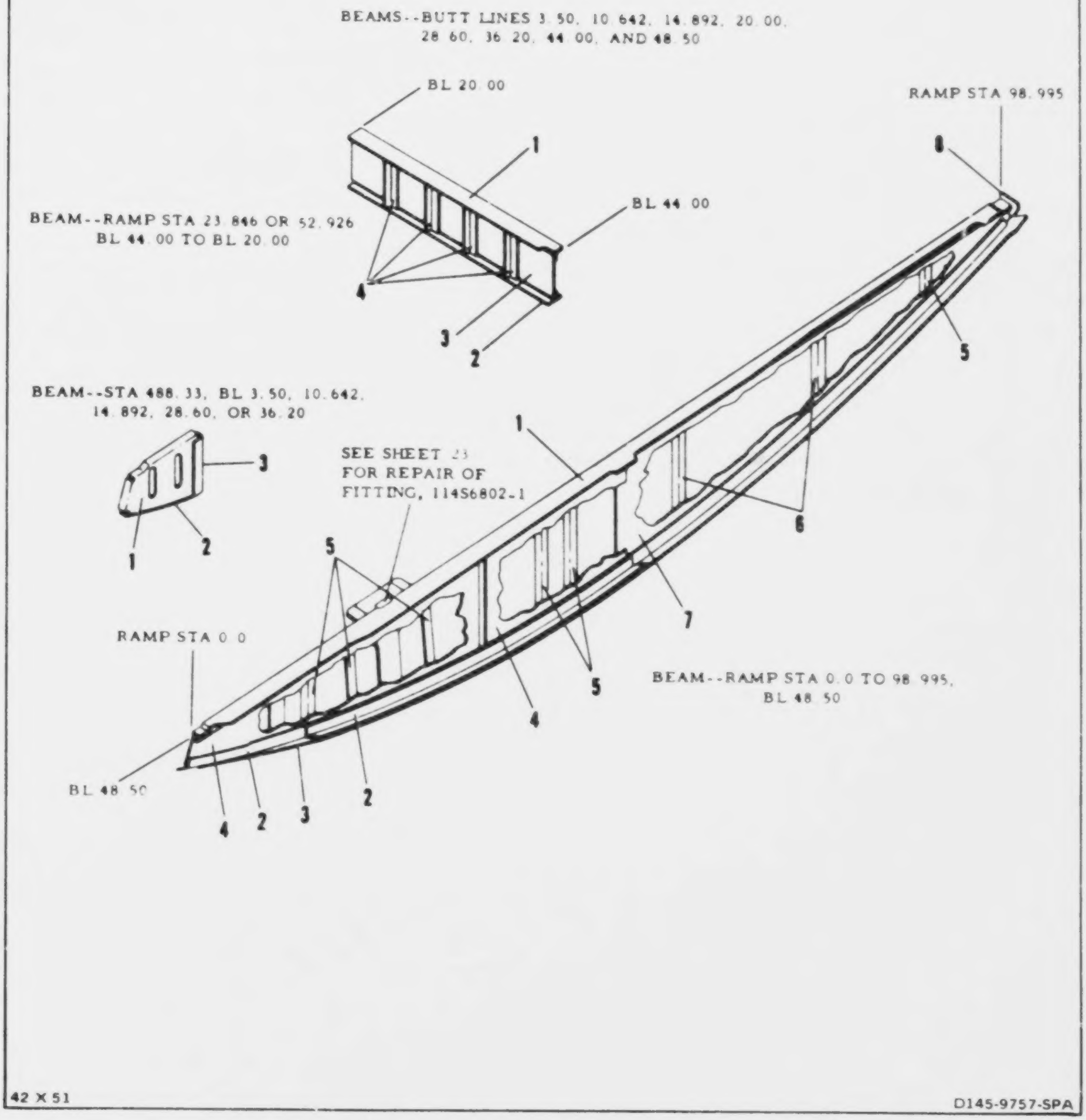
BEAMS--BUTT LINES 3.50, 10.642, 14.892, 20.00, 28.60, 36.20, 44.00, AND 48.50
BL 20.00
RAMP STA 98.995
1
8
BL 44.00
BEAM--RAMP STA 23.846 OR 52.926 BL 44.00 TO BL 20.00
4
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2
5
BEAM--STA 488.33, BL 3.50, 10.642, 14.892, 28.60, OR 36.20
3
1
2
1
SEE SHEET 23 FOR REPAIR OF FITTING, 114S6802-1
6
5
7
RAMP STA 0.0
5
BEAM--RAMP STA 0.0 TO 98.995, BL 48.50
4
BL 48.50
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42 X 51
D145-9757-SPA

Cargo Loading Ramp Assembly Repairs (Sheet 12 of 18)

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2-254 REPAIR RAMP (Continued) 2-254

BEAMS — BUTT LINES 3.50, 10.642, 14.892, 20.00, 28.60, 36.20, 44.00, AND 48.50
BEAMS — RAMP STATION 23.846 OR 52.926, BUTT LINE 44.00 TO 20.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	STIFFENER	ALCOA 22008	7075-T6	0.040	4130	2-29
2	ANGLE	ALCOA 12883	7075-T6	0.063	4130	NOTE B
3	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
4	STIFFENER	ALCOA 12883	7075-T6	0.063	4130	2-29

BEAMS — STATION 488.33, BUTT LINES 3.50, 10.642, 14.892, 28.60, AND 36.20

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
2	CAP	0.032	7075-T6 CLAD	0.040	7075-T6 CLAD	NOTE B
3	CLIP	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE B

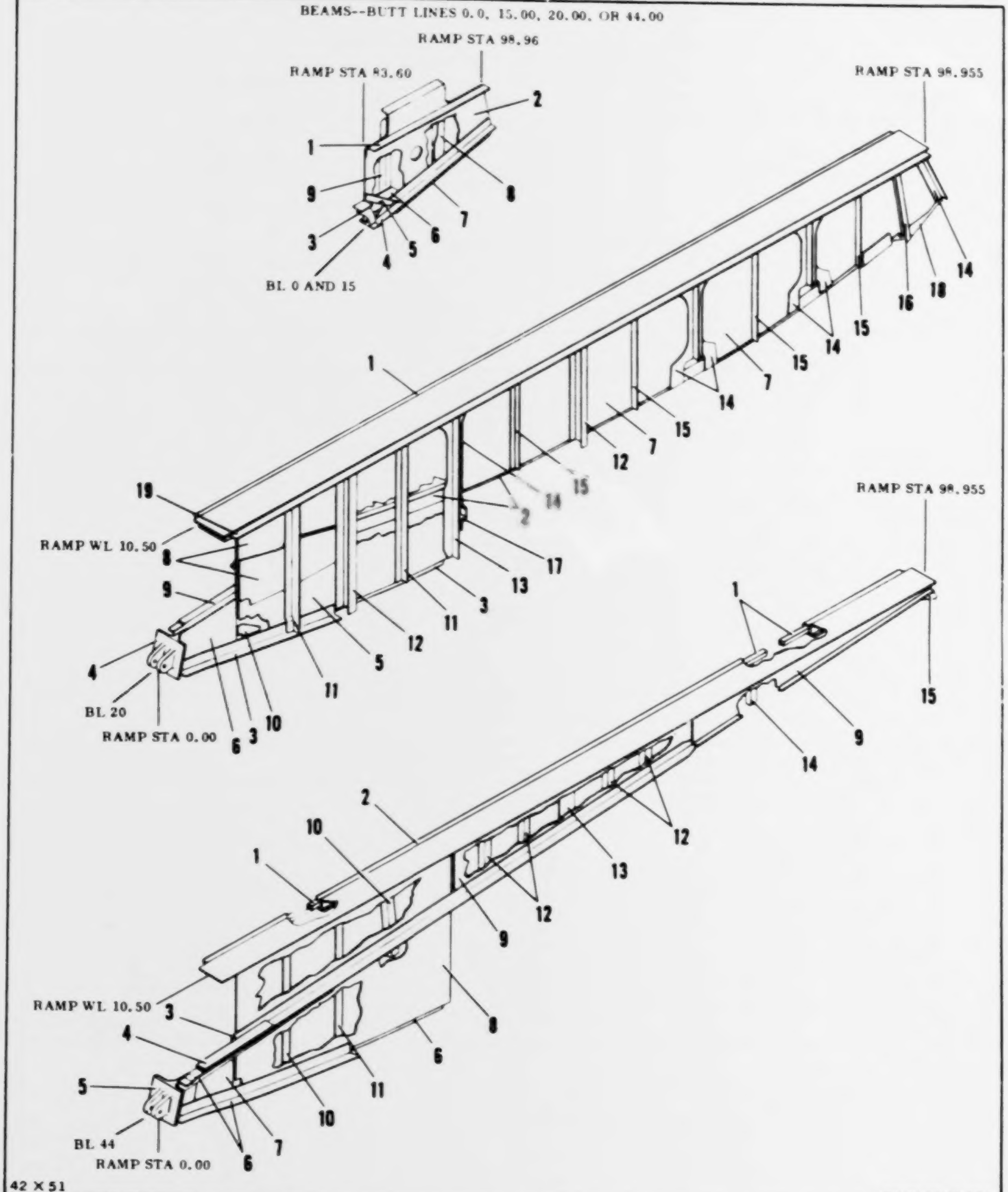
BEAM — RAMP STATION 0.0 TO 98.995, BUTT LINE 48.50

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CAP	ALCOA 55794	7075-T6	0.100	4130	NOTE B
2	ANGLE	0.070	7075-T6 CLAD	0.080	7075-T6 CLAD	NOTE B
3	CAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD	NOTE B
4	WEB	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
5	STIFFENER	ALCOA 67580	7075-T6	0.063	4130	2-29
6	STIFFENER	ALCOA 22477	7075-T6	0.050	4130	2-29
7	WEB	0.025	7075-T6 BARE	0.030	7075-T6 CLAD	2-13
8	CAP	ALCOA 55794	7075-T6	0.100	4130	NOTE B

NOTES: A All dimensions are in inches
B TM 55-1500-204-25/1

Cargo Loading Ramp Assembly Repairs (Sheet 13 of 18)

GO TO NEXT PAGE


BEAMS--BUTT LINES 0.0, 15.00, 20.00, OR 44.00
RAMP STA 98.96
RAMP STA 83.60
2
1
8
9
7
6
3
5
4
BL 0 AND 15
RAMP STA 98.955
14
18
16
15
14
15
14
7
1
15
14
7
12
15
14
2
19
17
RAMP WL 10.50
8
13
9
3
11
12
5
4
11
BL 20
10
RAMP STA 0.00
3
6
RAMP STA 98.955
1
15
9
14
12
2
10
13
1
12
9
8
RAMP WL 10.50
3
4
6
11
5
10
BL 44
7
RAMP STA 0.00
6
42 X 51
D145-9758-SPA

Cargo Loading Ramp Assembly Repairs (Sheet 14 of 18)

GO TO NEXT PAGE

2-254 REPAIR RAMP (Continued) 2-254

BEAMS — BUTT LINES 0.00, 15.00, 20.00, AND 44.00
BEAMS — BUTT LINES 0.00 AND 15.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	ALCOA 12883	7075-T6	0.063	4130
2	WEB	0.050	7075-T6	0.063	7075-T6 CLAD
3	SUPPORT	VS90328	7075-T6	NOTE B	
4	CAP	REYNOLDS 8665	7075-T6	0.090	4130
5	CAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
6	PAD	0.188 NYLON SHEET		NOTE B	
7	DOUBLER	0.040	7075-T6	0.050	7075-T6 CLAD
8	STIFFENER	AND10136-1401	7075-T6	0.071	4130
9	STIFFENER	ALCOA 12883	7075-T6	0.071	4130

BEAMS — BUTT LINES 20.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	—		NOTE E	
2	CAP	VS90413	7075-T6	NOTE B	
3	CAP	AND10134-1202	7075-T6	0.100	4130
4	HINGE	114S6806-1 AND -2		NOTE B	
5	WEB	0.032	7075-T6	0.040	7075-T6 CLAD
6	WEB	0.063	7075-T6	0.071	7075-T6 CLAD
7	WEB	0.020	7075-T6	0.025	7075-T6 CLAD
8	DOUBLER	0.020	7075-T6	0.025	7075-T6 CLAD
9	CAP	AND10133-1203	7075-T6	0.125	4130
10	GUSSET	0.032	7075-T6	0.040	4130
11	STIFFENER	ALCOA 15820	7075-T6	0.080	4130
12	STIFFENER	ALCOA 59256	7075-T6	0.063	4130
13	STIFFENER	ALCOA 30934	7075-T6	0.071	4130
14	STIFFENER	0.032	7075-T6	0.036	7075-T6 CLAD
15	STIFFENER	ALCOA 28546	7075-T6	0.050	4130
16	STIFFENER	AND10138-1004	7075-T6	0.071	4130
17	BUMPER	—		NOTE C	
18	TRACK	—		NOTE D	
19	ANGLE	0.050	2024-T3 CLAD	0.063	2024-T3 CLAD

BEAMS — BUTT LINES 44.00

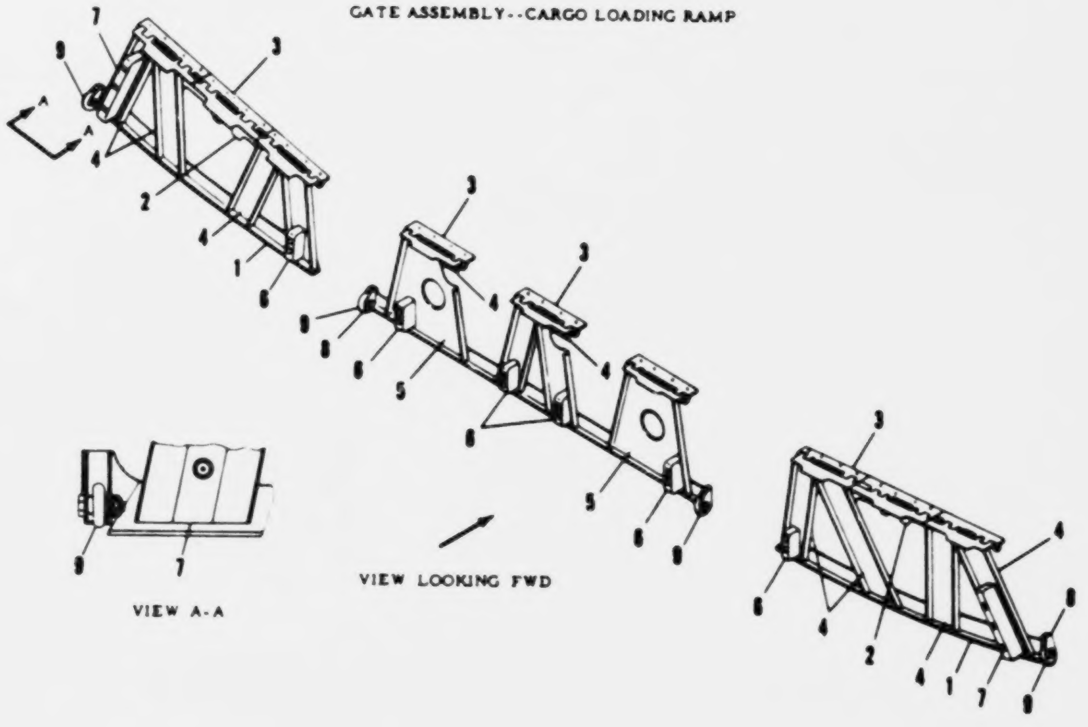
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	GANG CHANNEL	RM52LHTG51-02-J32		NOTE B	
2	CAP	VS90531 MAG ZK60-AT5		NOTE B	
3	CAP	ALCOA 59409	7075-T6	0.063	4130
4	STRAP	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
5	HINGE	6806-1-2		NOTE B	
6	CAP	HARVEY 16119	7075-T6	0.150	4130
7	WEB	0.063	7075-T6 BARE	0.071	7075-T6 CLAD
8	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
9	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD
10	STIFFENER	ALCOA 67580	7075-T6	0.063	4130
11	STIFFENER	ALCOA 51406	7075-T6	0.100	4130
12	STIFFENER	VS70504-4	7075-T6	0.040	4130
13	STIFFENER	AND10136-1501	7075-T6	0.071	4130
14	STIFFENER	ALCOA 22477	7075-T6	0.050	4130
15	BRACKET	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD

NOTES:
A All dimensions are in inches
B Replace damaged section with material same as original
C Replace with new bumper 114S661-1
D Replace with new track 114S6811-3 LH or 114S6811-1 RH
E Replace with new cap 114S6151-113 LH or -114 RH

Cargo Loading Ramp Assembly Repairs (Sheet 15 of 18)

GO TO NEXT PAGE

2-254 REPAIR RAMP (Continued) 2-254


GATE ASSEMBLY--CARGO LOADING RAMP
7
9
3
A
A
4
2
4
1
6
3
3
4
9
8
6
5
4
6
5
3
8
9
4
6
4
2
4
1
7
8
9
9
7
VIEW A-A
VIEW LOOKING FWD

42 X 51

D145-9759-SPA

Cargo Loading Ramp Assembly Repairs (Sheet 16 of 18)

GO TO NEXT PAGE

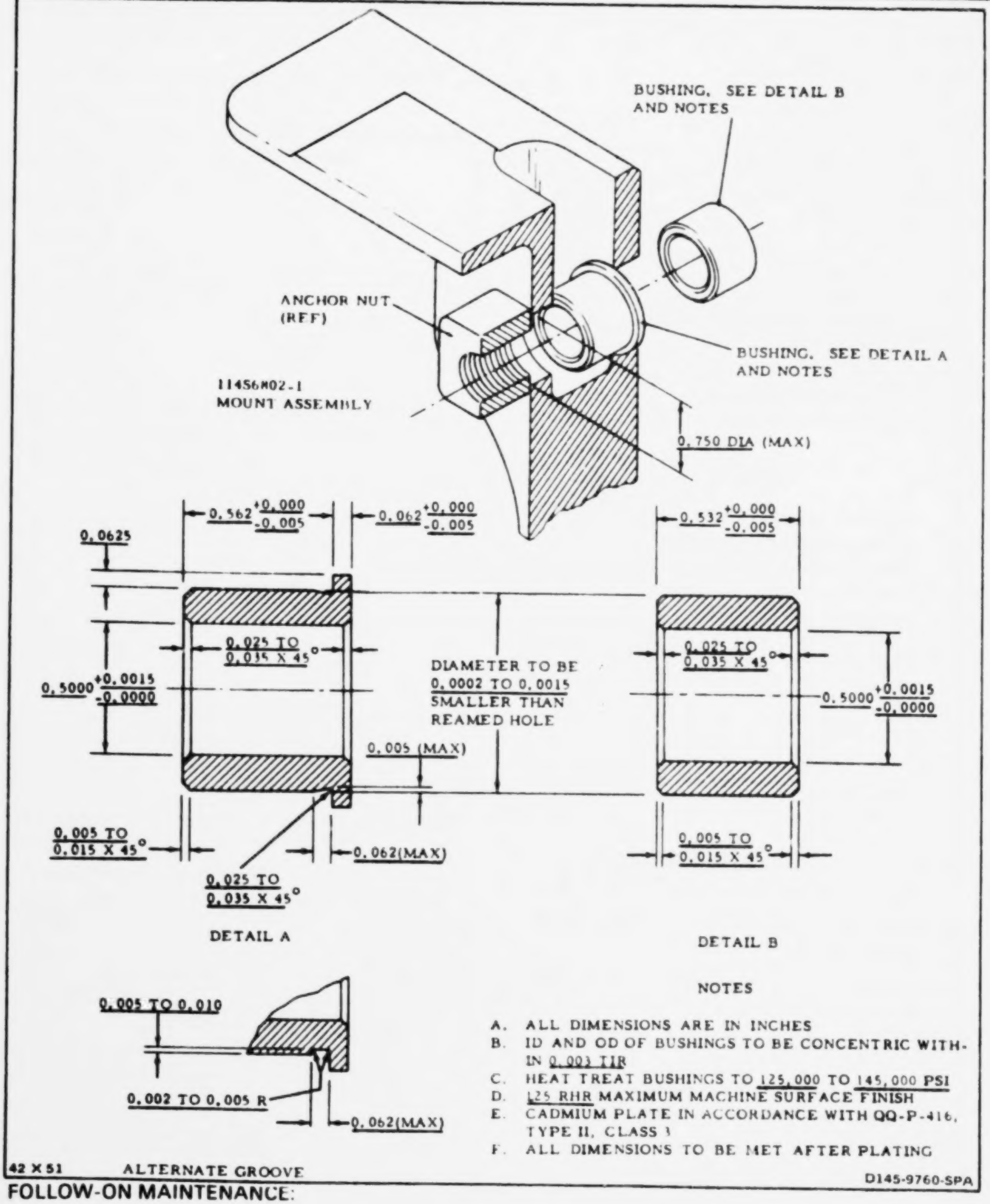
GATE ASSEMBLY — CARGO LOADING RAMP

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	CAP	BAC1514-1644	7075-T6	NOTE B	
2	HINGE	BAC1514-1643	7075-T6	NOTE B	
3	HINGE	BAC1513-367	7075-T6	NOTE B	
4	CHANNEL	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD
5	CHANNEL	0.063	7075-T6 CLAD	0.071	7075-T6 CLAD
6	BUMPER	SILICONE RUBBER LAMINAR		NOTE C	
7	BUMPER	SILICONE RUBBER LAMINAR		NOTE D	
8	BRACKET	ALCOA 56914	7075-T6	0.063	4130
9	ROLLER	NYLON, 1.0-INCH DIA		NOTE E	

NOTES:
A All dimensions are in inches
B Repair impractical. Replace part with material same as original
C Replace with new bumper 114S6709-1
D Replace with new bumper 114S6709-2
E Replace with new roller 114S6706-1

Cargo Loading Ramp Assembly Repairs (Sheet 17 of 18)

GO TO NEXT PAGE


BUSHING, SEE DETAIL B AND NOTES
ANCHOR NUT (REF)
BUSHING, SEE DETAIL A AND NOTES
114568O2-1 MOUNT ASSEMBLY
0.750 DIA (MAX)
0.562 +0.000 -0.005
0.062 +0.000 -0.005
0.532 +0.000 -0.005
0.0625
0.025 TO 0.035 X 45°
0.5000 +0.0015 -0.0000
DIAMETER TO BE 0.0002 TO 0.0015 SMALLER THAN REAMED HOLE
0.025 TO 0.035 X 45°
0.5000 +0.0015 -0.0000
0.005 (MAX)
0.005 TO 0.015 X 45°
0.062(MAX)
0.025 TO 0.035 X 45°
0.005 TO 0.015 X 45°
DETAIL A
DETAIL B
0.005 TO 0.010
0.002 TO 0.005 R
0.062(MAX)
42 X 51
ALTERNATE GROOVE
D145-9760-SPA

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. ID AND OD OF BUSHINGS TO BE CONCENTRIC WITHIN 0.003 TIR
C. HEAT TREAT BUSHINGS TO 125,000 TO 145,000 PSI
D. 125 RHR MAXIMUM MACHINE SURFACE FINISH
E. CADMIUM PLATE IN ACCORDANCE WITH QQ-P-416, TYPE II, CLASS 3
F. ALL DIMENSIONS TO BE MET AFTER PLATING

FOLLOW-ON MAINTENANCE:

As required.

Cargo Loading Ramp Assembly Repairs (Sheet 18 of 18)

END OF TASK

2-255 INSTALL CARGO RAMP 2-255

INITIAL SETUP

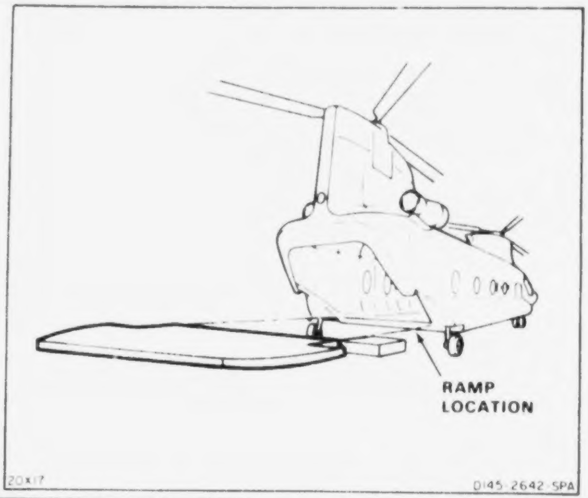
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lockwire (E229)
Packings

Personnel Required:
67U10 Medium Helicopter Repairer (5)
67U20 Medium Helicopter Repairer
67U30 Inspector

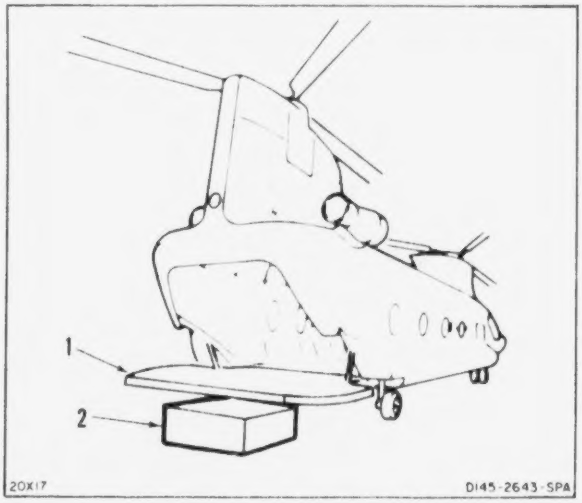
References:
TM 55-1520-240-23P



WARNING

Padded support must be in place before strap is attached to ramp. Strap must not support full weight of ramp. Cargo ramp weight is 404 pounds.

1. With aid of helpers, **position ramp (1)** on padded support (2) at ramp location.

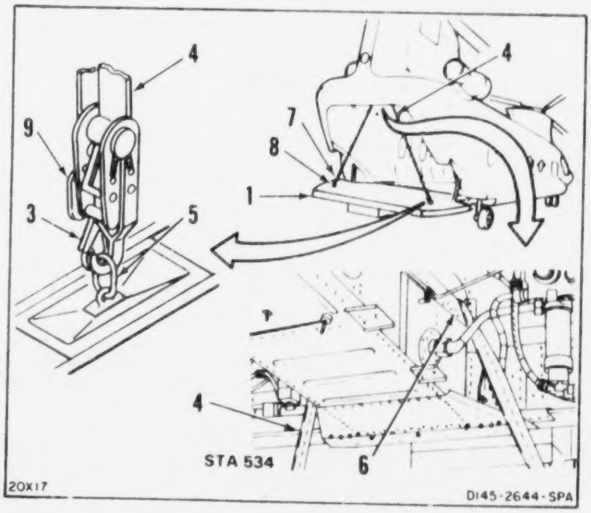


2. **Attach ratchet-hook (3)** of tiedown strap (4) to tiedown ring (5) on ramp (1).
3. **Loop tiedown strap (4) over sync shaft tunnel (6)** at station 534.
4. **Attach hook (7)** of tiedown strap (4) to tiedown ring (8) on ramp (1).

CAUTION

Do not allow strap to rub against tubing or lines. Damage to tubing or lines could occur.

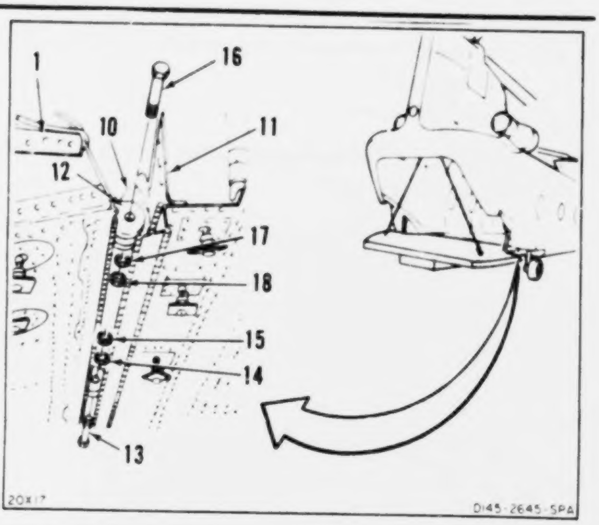
5. **Take-up slack in strap (4) only** with ratchet (9).



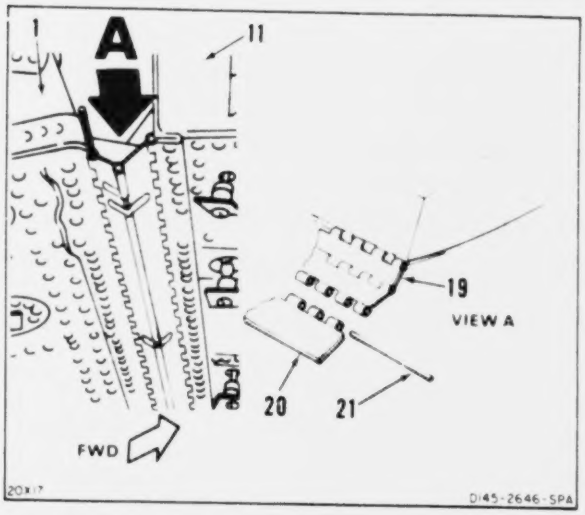
GO TO NEXT PAGE

2-255 INSTALL CARGO RAMP (Continued) 2-255

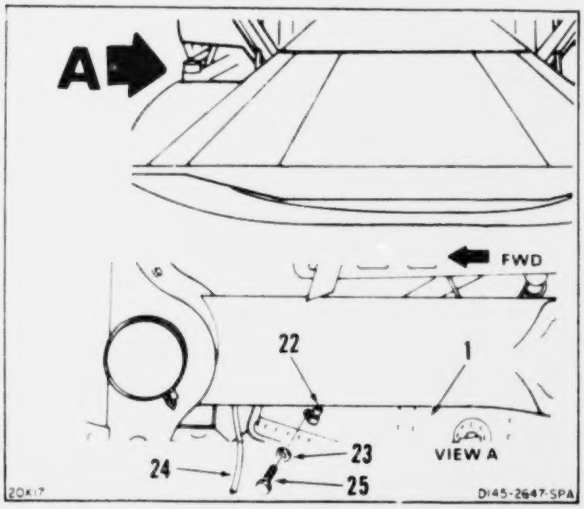
6. **Align fittings (10) on fuselage (11) with fittings (12) on ramp (1).**
7. **Install left and right inboard hinge bolts (13),** washers (14) and nuts (15).
8. **Install left and right outboard hinge bolts (16),** washers (17), and nuts (18).


1
16
10
11
12
17
18
15
14
13
20X17
D145-2645-SPA

9. **Align hinge half (19) of fuselage (11) with hinge half (20) of ramp (1).**
10. **Install two hinge pins (21).** Lockwire pins with lockwire (E229).


1
A
11
19
VIEW A
20
21
FWD
20X17
D145-2646-SPA

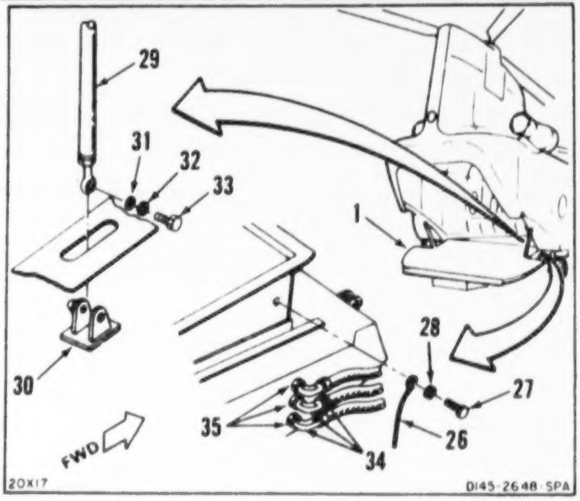
11. **Install antenna bracket (22),** washers (23), **antenna (24), and screw (25)** on ramp (1).


A
FWD
22
1
23
VIEW A
24
25
20X17
D145-2647-SPA

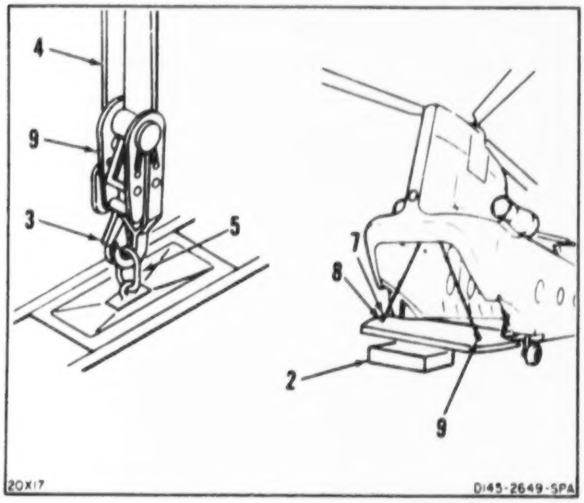
GO TO NEXT PAGE

2-255 INSTALL CARGO RAMP (Continued) 2-255

12. **Connect two electrical leads (26)** on right and left sides of ramp (1). Install two bolts (27) and washers (28).
13. **Position two actuator cyclinders (29)** on lower fittings (30).
14. **Install two** packings (31), washers (32) and **bolts (33).**
15. **Connect three hydraulic hoses (34)** on fittings (35).


29
31
32
33
1
28
27
30
FWD
35
26
34
20X17
D145-2648-SPA

16. Ease tension off tiedown strap (4) with ratchet (9).
17. Remove ratchet hook (3) and hook (7) from tiedown rings (5 and 8).
18. Remove strap (4) from helicopter.
19. Remove padded support (2).

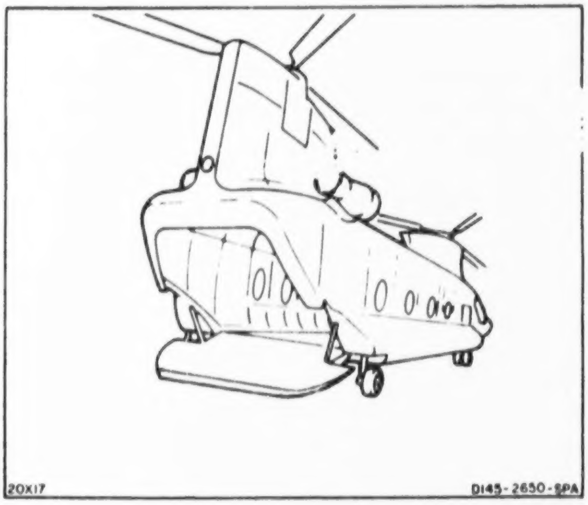

4
9
3
5
7
8
2
9
20X17
D145-2649-SPA

INSPECT

FOLLOW-ON MAINTENANCE:

Bleed utility hydraulic system (Task 7-339).

Perform operational check of cargo ramp TM 55-1520-240-T.


20X17
D145-2650-SPA

END OF TASK

2-256 REMOVE CARGO DOOR RAMP PANEL (ESCAPE HATCH) 2-256

INITIAL SETUP

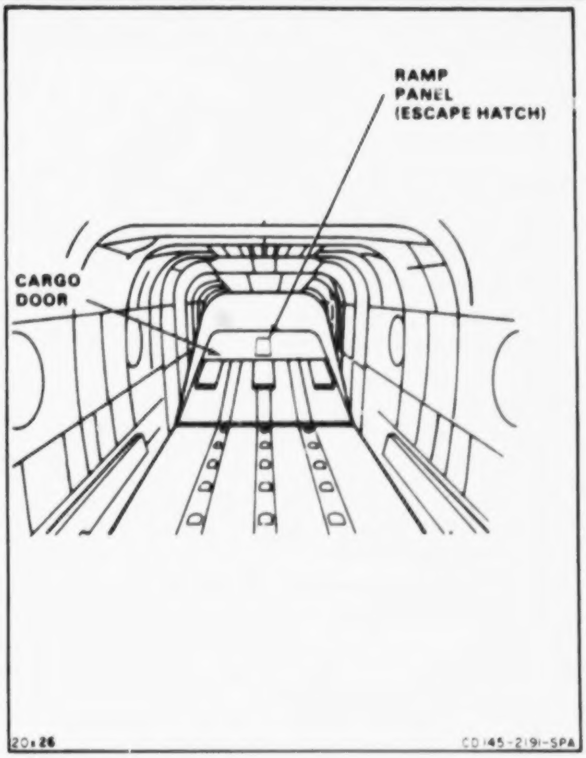
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

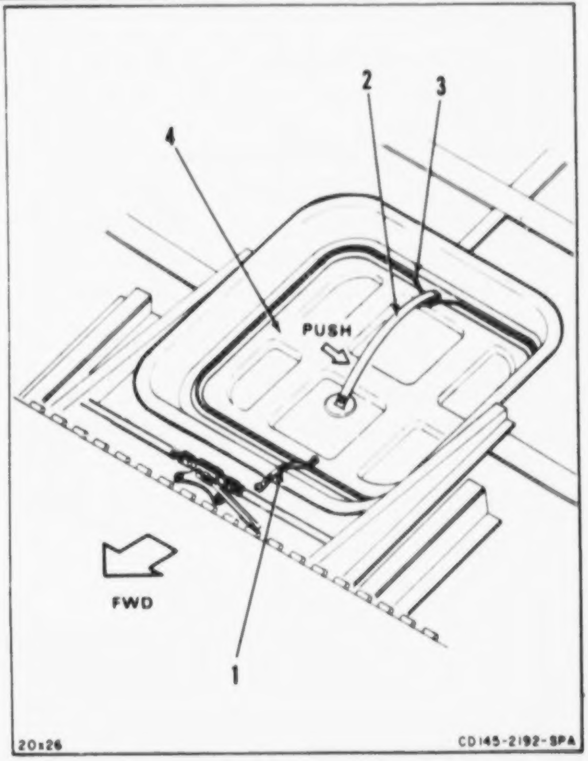
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Cargo Ramp Lowered and Cargo Door Fully Extended (TM 55-1520-240-T)


RAMP PANEL (ESCAPE HATCH)
CARGO DOOR
20x26
CD145-2191-SPA

1. **Disconnect electrical lead (1).**
2. **Pull release (2)** to unseat filler strip (3).
3. **Remove filler strip (3)** from panel (4).
4. Position helper outside helicopter to catch panel (4).
5. **Push out and remove panel (4).**


2
3
4
PUSH
FWD
1
20x26
CD145-2192-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-257 INSTALL CARGO DOOR RAMP PANEL (ESCAPE HATCH) 2-257

INITIAL SETUP

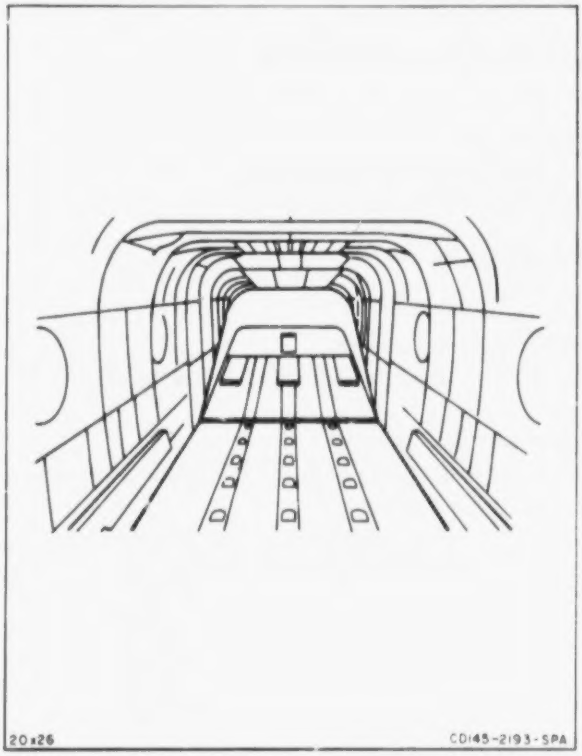
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Container, Two Quart
Window Tool 756460
Window Tool 756475

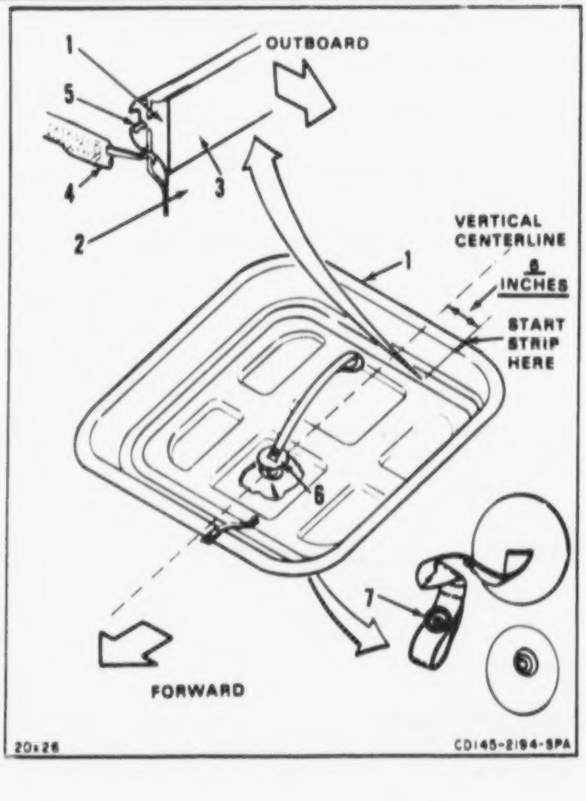
Materials:
Brush (E86)
Soap (E352)
Water

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P


20x26
CD145-2193-SPA

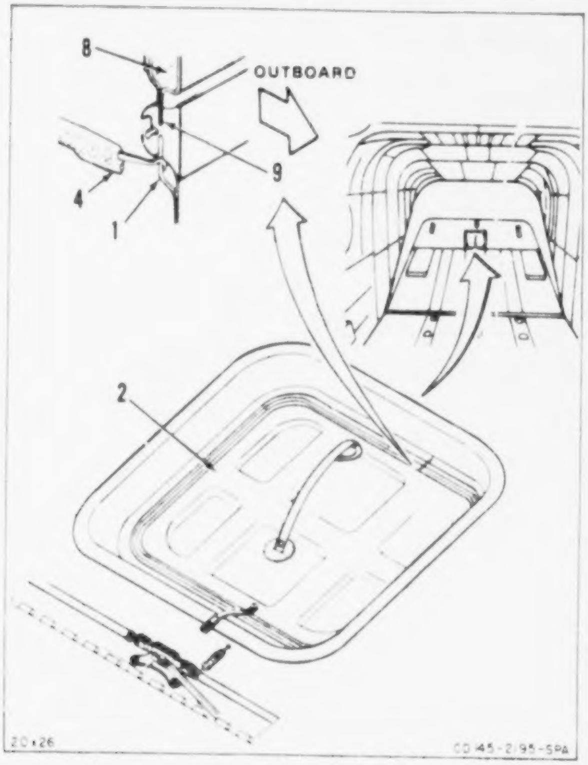
1. **Position rubber strip (1)** on ramp panel (2) (escape hatch). Make sure flat side (3) of strip is outboard.
2. With aid of helper, **install strip (1)** starting at upper right side of panel (2), 6 inches from centerline. Use window tool (756475) (4), soap (E352), water, and brush (E86). Inner channel (5) of strip shall be over edge of panel.
3. **Check grommet (6) and fastener (7).** Release grommet shall be secured on panel (2). Fastener shall be secured outside of panel (2).


1
OUTBOARD
5
4
3
2
VERTICAL CENTERLINE
6 INCHES
1
START STRIP HERE
6
7
FORWARD
20x26
CD145-2194-SPA

GO TO NEXT PAGE

2-257 INSTALL CARGO DOOR RAMP PANEL (ESCAPE HATCH) (Continued) 2-257

4. Have helper position and hold panel (2) from outside helicopter.
5. **Install strip (1) around structure (8).** Outer channel (9) of strip shall be over structure. Use window tool (756475) (4), soap (E352), water, and brush (E86).

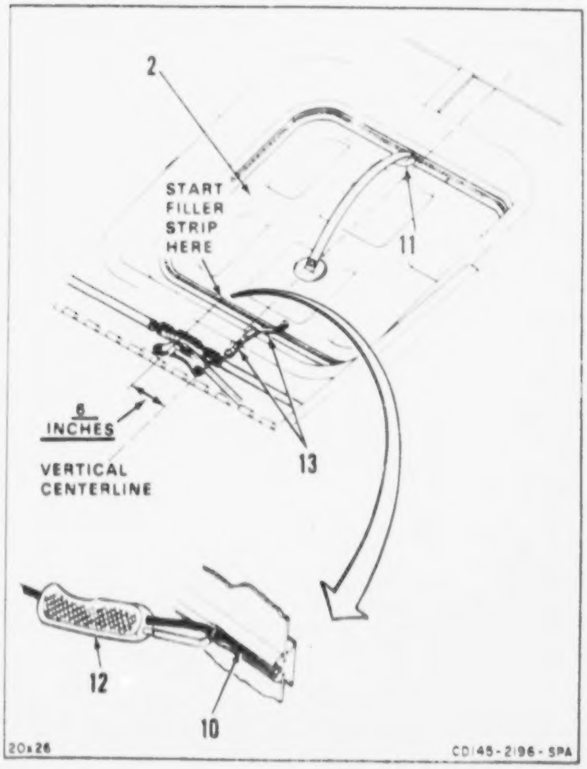

8
OUTBOARD
9
4
1
2
20x26
CD145-2195-SPA

WARNING

Install filler strip in one piece. Otherwise, when release strap is pulled, filler strip will not be completely removed and panel will still be held firmly in place. This could result in personnel being trapped during an emergency.

6. **Install filler strip (10),** starting at lower left side of panel (2), about 6 inches from centerline. Use window tool (756460) (12), soap (E352), water, and brush (E86).
7. Remove tool (756460) (12) and **pass filler strip (10)** through loop of release strap (11). Reinstall tool (756460) on filler strip (10).
8. **Loop of release strap (11)** shall be secured to filler strip (10) at top of panel (2).
9. **Connect electrical lead (13)** to panel (2).

INSPECT

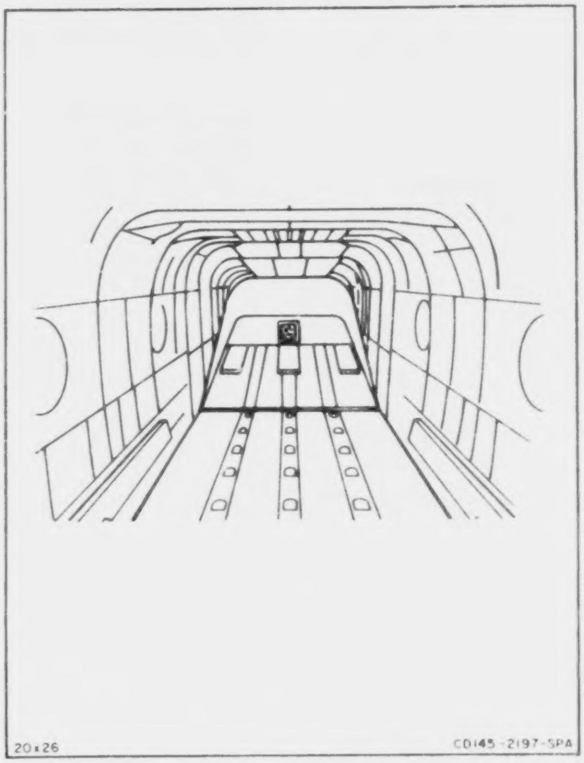

2
START FILLER STRIP HERE
11
6 INCHES
VERTICAL CENTERLINE
13
12
10
20x26
CD145-2196-SPA

GO TO NEXT PAGE

2-257 INSTALL CARGO DOOR RAMP PANEL (ESCAPE HATCH) (Continued) 2-257

FOLLOW-ON MAINTENANCE:

None


20x26
CD145-2197-SPA

END OF TASK

2-257.1 REMOVE CARGO RAMP GATE 2-257.1

INITIAL SETUP

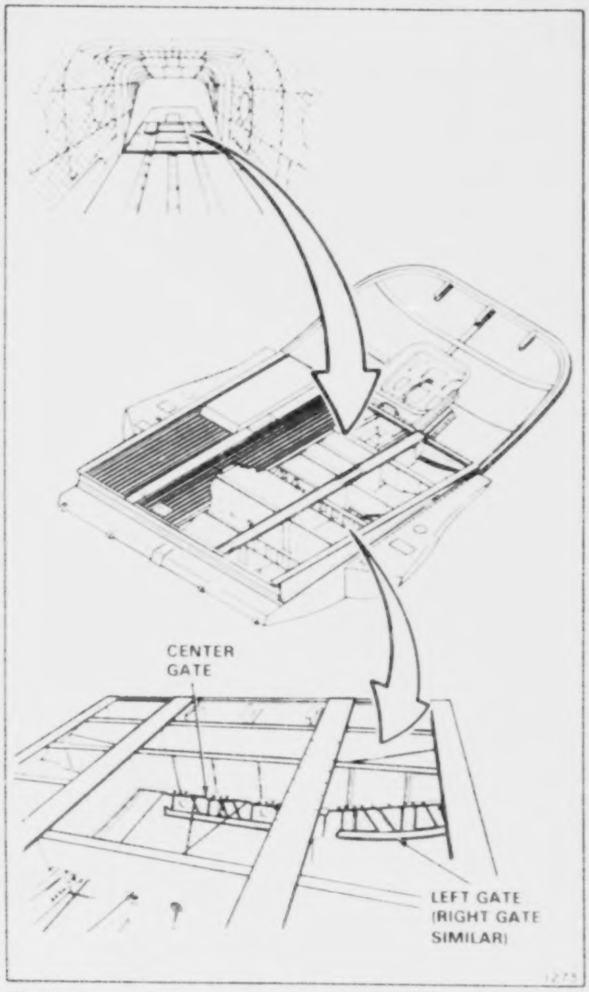
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Lowered and Cargo Door Fully Extended (TM 55-1520-240-T)
Cargo Ramp Floor Panels Removed as Required (Task 2-247)



20 x 34

GO TO NEXT PAGE

2-257.1 REMOVE CARGO RAMP GATE (Continued) 2-257.1

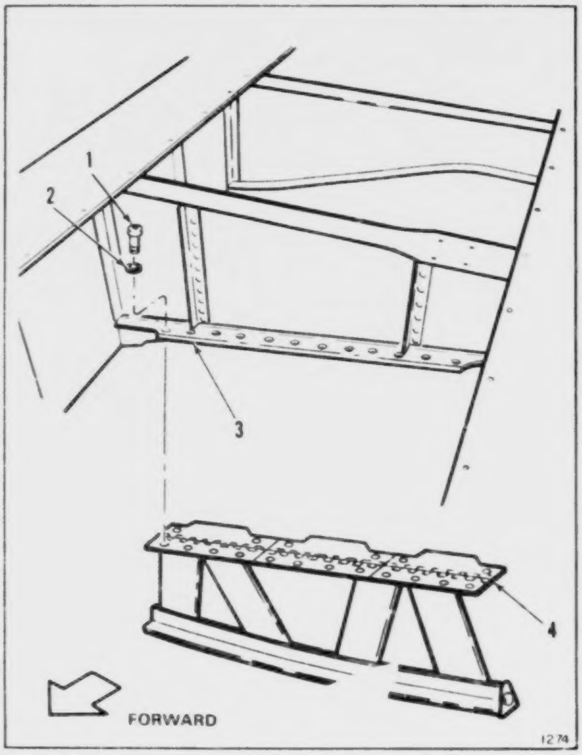
NOTE

Procedure is same to remove center, left, or right gate. Left gate shown here.

1. **Remove 12 screws (1) and washers (2)** from bottom flange of former (3).
2. Remove gate (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-257.2 INSTALL CARGO RAMP GATE 2-257.2

INITIAL SETUP

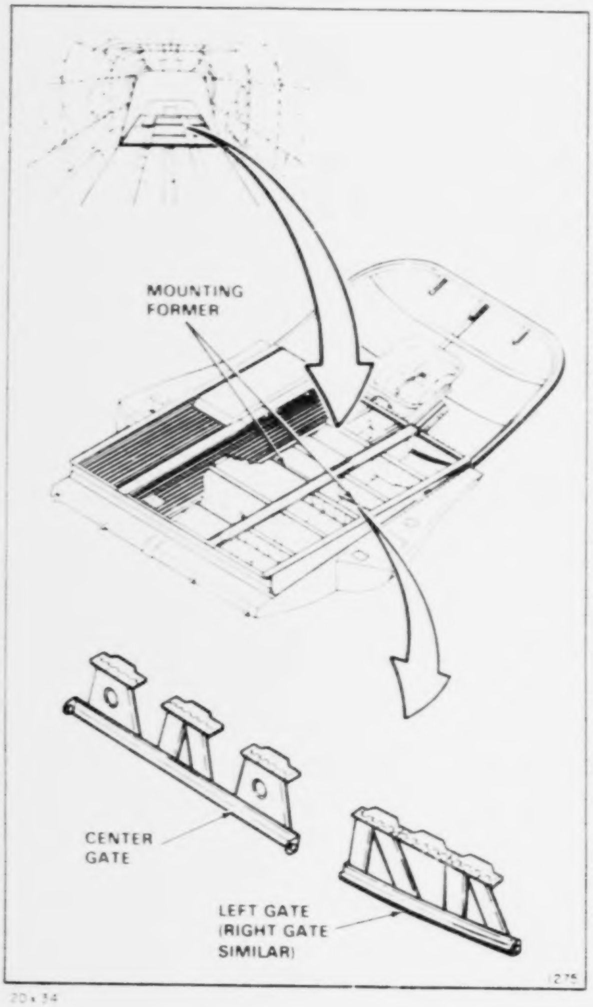
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer
Inspector

References:
TM 55-1520-240-23P


MOUNTING FORMER
CENTER GATE
LEFT GATE (RIGHT GATE SIMILAR)
1275
20 x 34

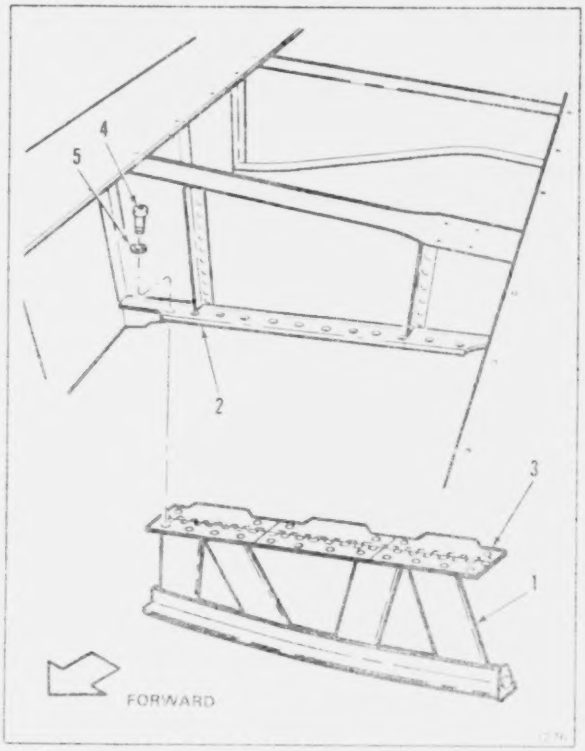
GO TO NEXT PAGE

2-257.2 INSTALL CARGO RAMP GATE (Continued) 2-257.2

NOTE

Procedure is same to install center, left, or right gate. Left gate shown here.

1. **Position gate (1)** under bottom flange of former (2). **Align holes** in gate hinge (3) and former.
2. **Install 12 screws** (4) and washers (5).



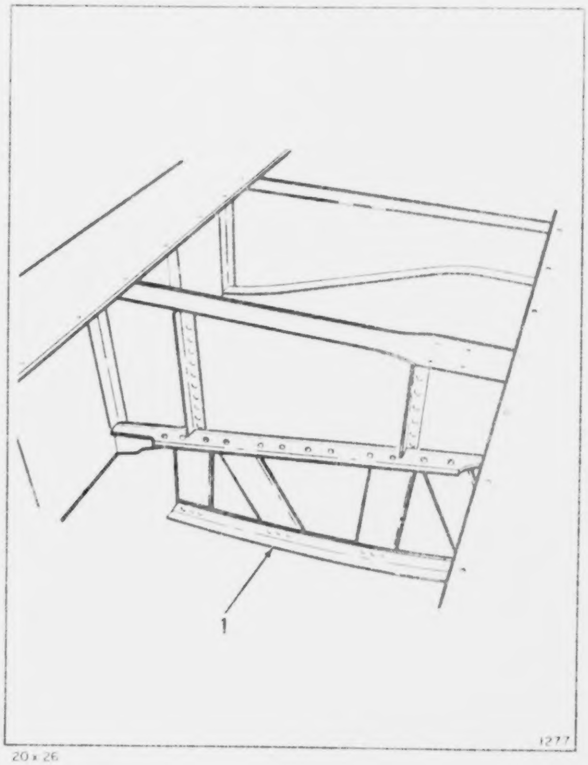
20 x 26

3. Check that gate (1) swings forward on hinge easily.

FOLLOW-ON MAINTENANCE:

Install Cargo Ramp Floor Panels (Task 2-249)

Raise Cargo Ramp (TM 55-1520-240-T)



20 x 26

END OF TASK

2-258 REMOVE SUPPRESSIVE FIRE SYSTEM AFT SUPPORT PLATE 2-258

INITIAL SETUP

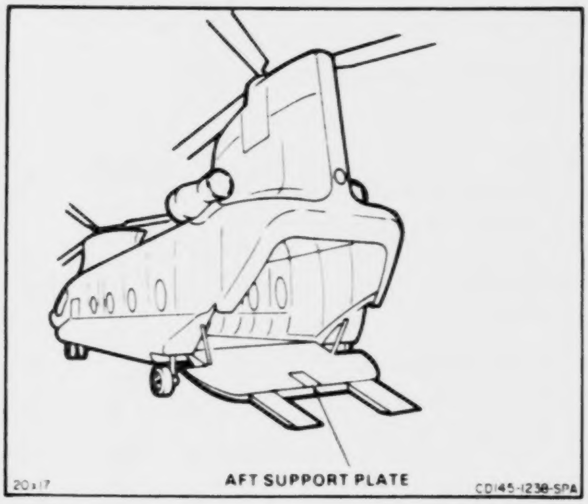
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

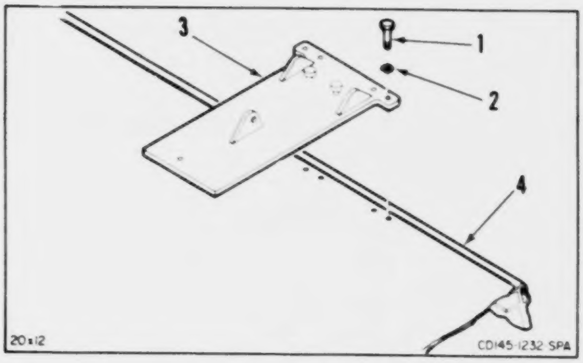
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

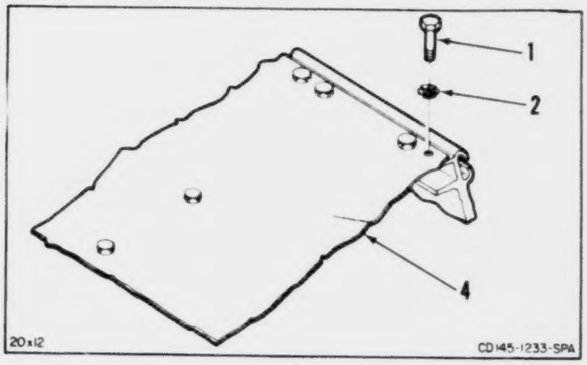
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Ramp Lowered


20x17
AFT SUPPORT PLATE
CD145-1238-SPA

1. **Remove six bolts (1) and washers (2)** from plate (3).
2. **Remove plate (3)** from ramp floor (4).


3
1
2
4
20x12
CD145-1232 SPA

3. **Install six bolts (1) and washers (2)** in holes in ramp floor (4).


1
2
4
20x12
CD145-1233-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-259 INSTALL SUPPRESSIVE FIRE SYSTEM AFT SUPPORT PLATE 2-259

INITIAL SETUP

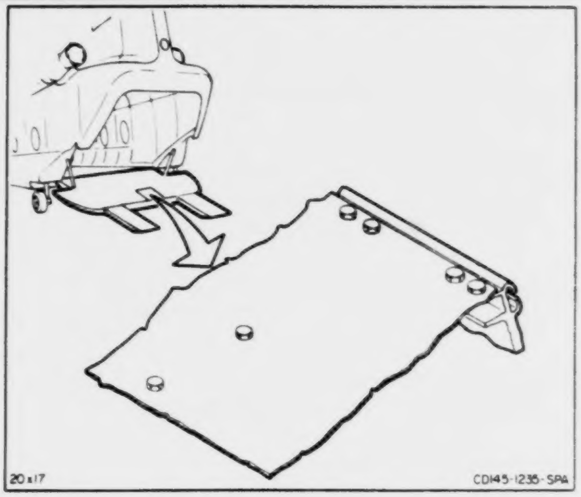
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

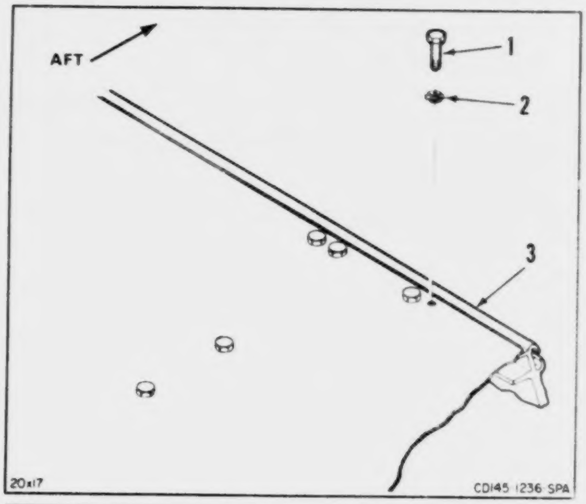
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

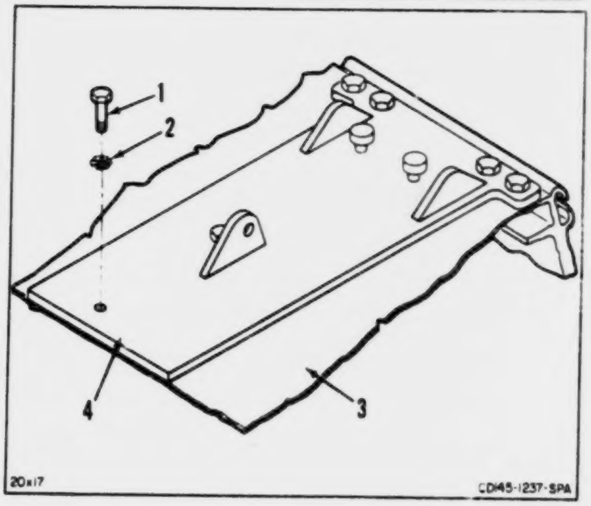

20x17
CD145-1235-SPA

1. **Remove six bolts (1) and washers (2)** from aft center of ramp floor (3).


AFT
1
2
3
20x17
CD145-1236-SPA

2. Install plate (4) on ramp floor (3).
3. Line up holes through plate (4) and ramp floor (3).
4. **Install six bolts (1) and washers (2)** in plate (4).

INSPECT


1
2
4
3
20x17
CD145-1237-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-260 REMOVE CARGO DOOR 2-260

INITIAL SETUP

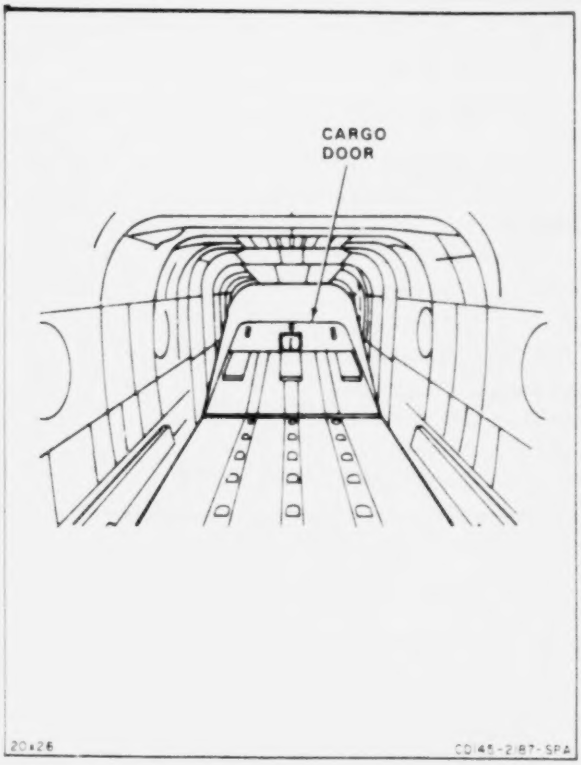
Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (3)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Extensions Folded and Cargo Ramp Level (TM 55-1520-240-T)
Cargo Door Fully Extended (TM 55-1520-240-T)

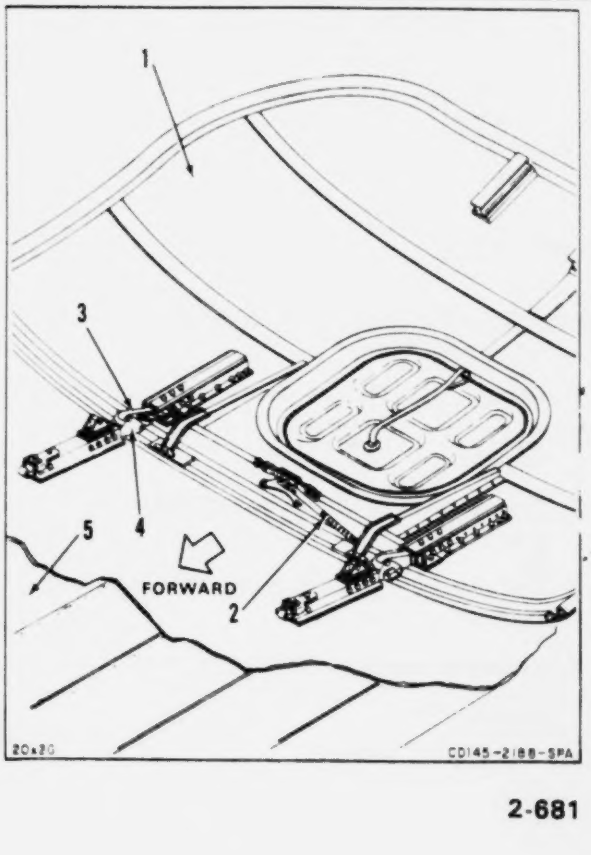


1. Have helpers support cargo door (1).

CAUTION

Do not pull release handle more than 135 degrees or damage to release mechanism can occur.

2. **Raise handle (2) and unlock bodies (3) from receivers (4).**
3. **Remove door (1)** from ramp (5).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-261 REMOVE CARGO DOOR TRACK SUPPORT 2-261

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

None

Personnel Required:

67U10 Medium Helicopter Repairer

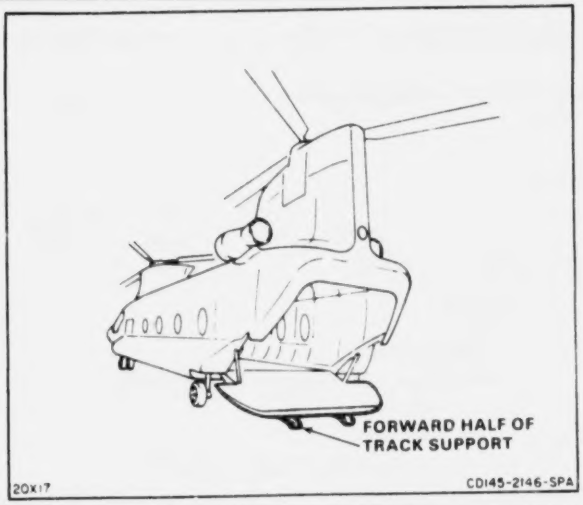
67U20 Medium Helicopter Repairer

Equipment Condition:

Battery Disconnected (Task 1-39)

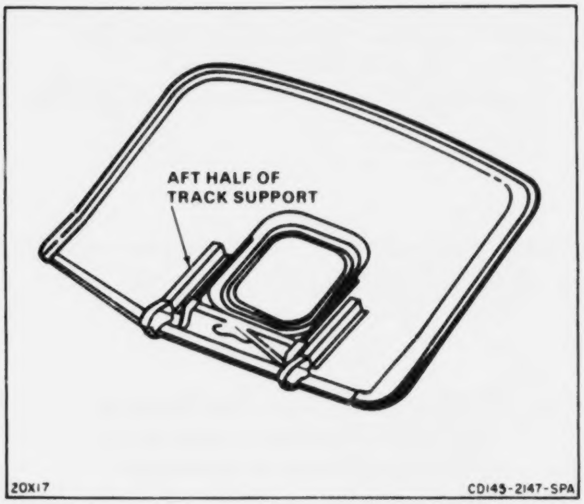
Electrical Power Off

Cargo Door Removed (Task 2-260


FORWARD HALF OF TRACK SUPPORT
20X17
CD145-2146-SPA

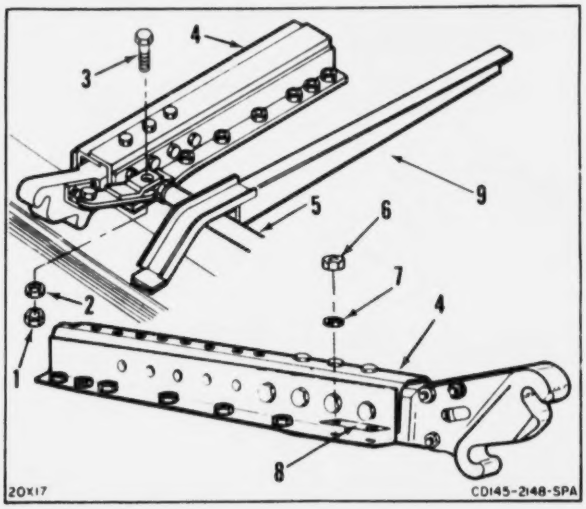
NOTE

Procedure is same for right and left supports. Right support is shown here.


AFT HALF OF TRACK SUPPORT
20X17
CD145-2147-SPA

REMOVE AFT HALF OF SUPPORT

1. Remove nut (1), washer (2), and bolt (3) from aft half of track support (4) and connecting link (5).
2. **Disconnect connecting link (5)** from support (4).
3. Remove 16 nuts (6), washers (7), and plate (8) from support (4).
4. **Remove support (4)** from cargo door (9).

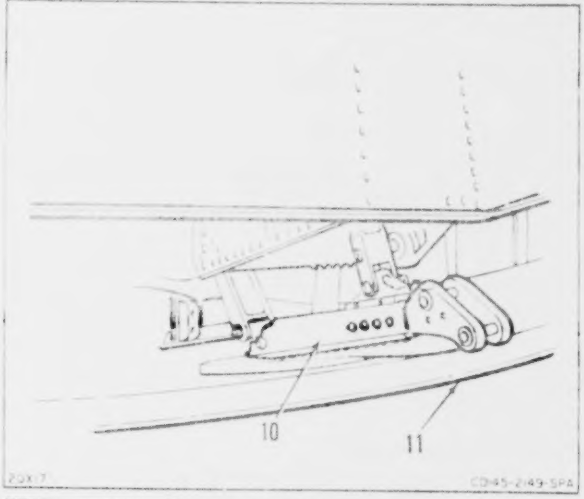

4
3
9
5
6
7
4
2
1
8
20X17
CD145-2148-SPA

GO TO NEXT PAGE

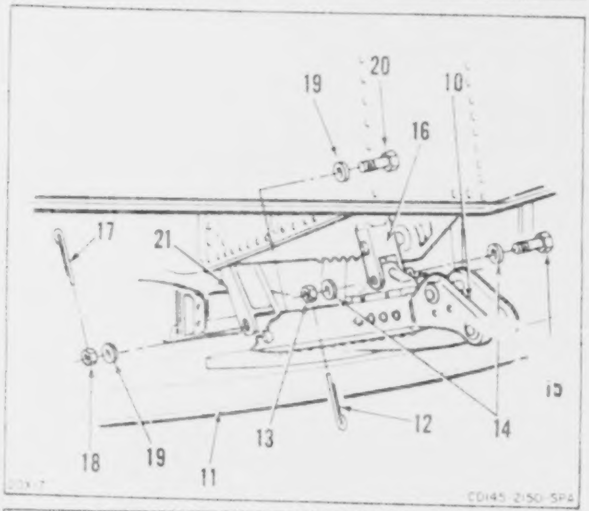
2-261 REMOVE CARGO DOOR TRACK SUPPORT (Continued) 2-261

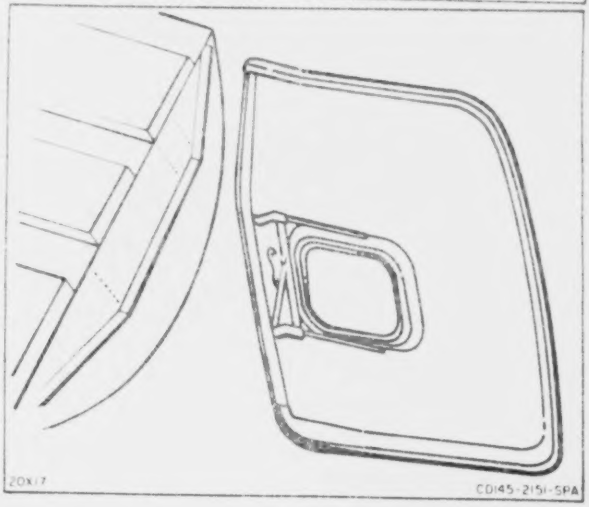
REMOVE FORWARD HALF OF SUPPORT

5. Make sure support (10) is in extended position in ramp (11) as shown.


10
11
20X17
CD145-2149-SPA

6. Remove cotter pin (12), nut (13), two washers (14), and bolt (15) from actuator link (16).
7. **Disconnect actuator link (16)** from track support (10).
8. Remove cotter pin (17), nut (18), two washers (19), and bolt (20).
9. **Disconnect actuator link (21)** from track support (10).
10. **Remove forward half of support (10)** from ramp (11).


19
20
10
16
17
21
15
18
19
11
13
12
14
20X17
CD145-2150-SPA


20X17
CD145-2151-SPA

FOLLOW-ON MAINTENANCE:

Remove body from track support (Task 2-263).

Remove receiver from track support (Task 2-263).

END OF TASK

2-262 INSTALL CARGO DOOR TRACK SUPPORT 2-262

20 X 17
CD145-2152-SPA

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:
Lubricant (E235)

Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P

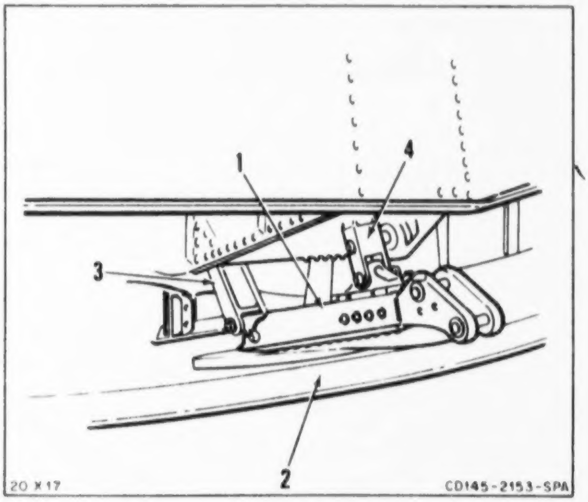
Equipment Condition:
Install Cargo Door Body and Receiver (Task 2-264)

INSTALL FORWARD HALF

NOTE

Procedure is same to install right or left support. Installation of right support is shown.

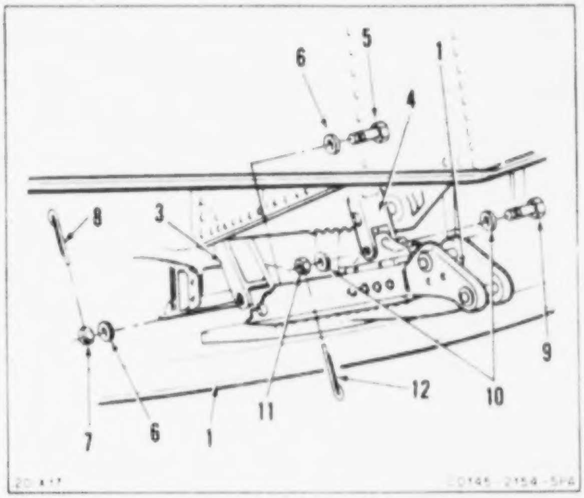
1. **Position forward half of support (1)** on ramp (2) under links (3 and 4).



GO TO NEXT PAGE

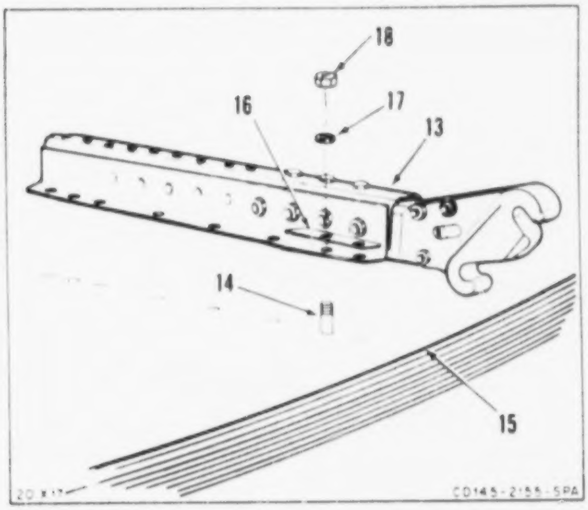
2-262 INSTALL CARGO DOOR TRACK SUPPORT (Continued) 2-262

2. Coat bolt (5) with lubricant (E235). **Install bolt,** two washers (6), nut (7), and cotter pin (8) through support (1) and link (3).
3. Coat bolt (9) with lubricant (E235). **Install bolt,** two washers (10), nut (11) and cotter pin (12) through support and link (4).

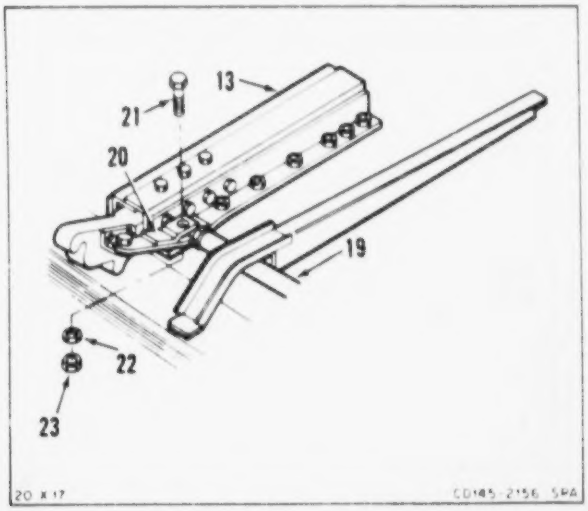

6
5
1
4
8
3
9
12
10
11
7
6
1
20 X 17
CD145-2154-SPA

INSTALL AFT HALF

4. **Position aft half support (13) on 16 bolts (14)** on door (15). Position plates (16) on bolts (14).
5. **Install 16** washers (17) and **nuts (18).**


18
16
17
13
14
15
20 X 17
CD145-2155-SPA

6. **Position connecting link (19)** on bracket (20). Install bolt (21), washer (22) and nut (23).


21
13
20
19
22
23
20 X 17
CD145-2156-SPA

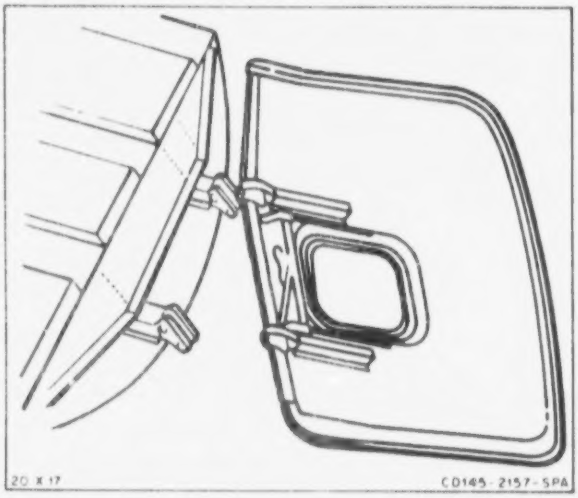
INSPECT

GO TO NEXT PAGE

2-262 INSTALL CARGO DOOR TRACK SUPPORT (Continued) 2-262

FOLLOW-ON MAINTENANCE:

Install cargo door on cargo ramp (Task 2-271).


20 X 17
CD145-2157-SPA

END OF TASK

2-263 REMOVE CARGO DOOR BODY AND RECEIVER SET 2-263

INITIAL SETUP

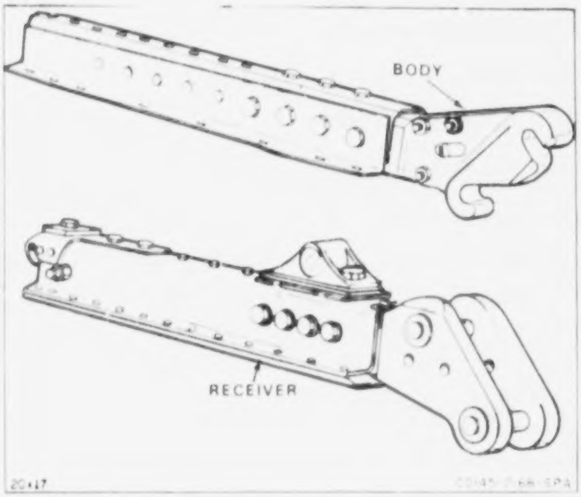
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

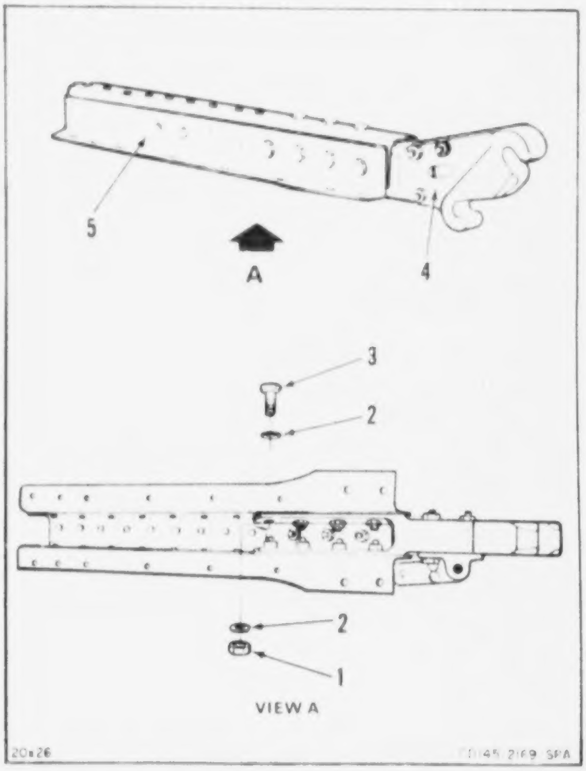
Equipment Condition:
Off Helicopter Task


BODY
RECEIVER
20x17
CD145-2168-SPA

REMOVE BODY

1. Remove 11 nuts (1), 22 washers (2), and 11 bolts (3).

2. **Remove body (4)** from track support (5).

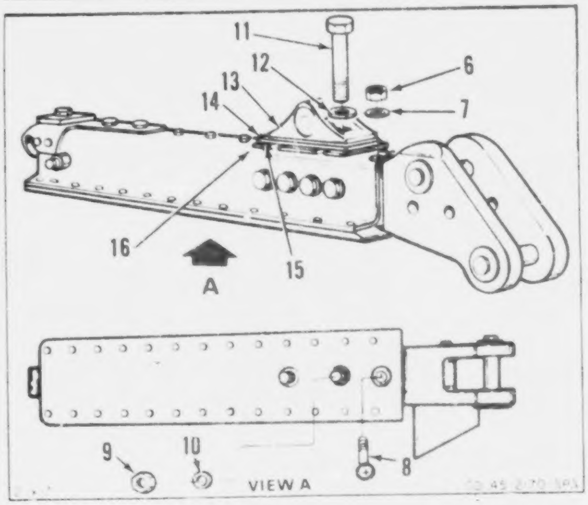

5
A
4
3
2
2
1
VIEW A
20x26
CD145-2169-SPA

GO TO NEXT PAGE

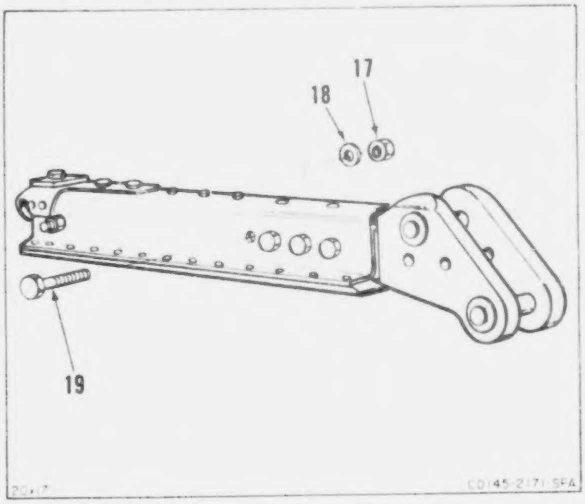
2-263 REMOVE CARGO DOOR BODY AND RECEIVER SET (Continued) 2-263

REMOVE RECEIVER

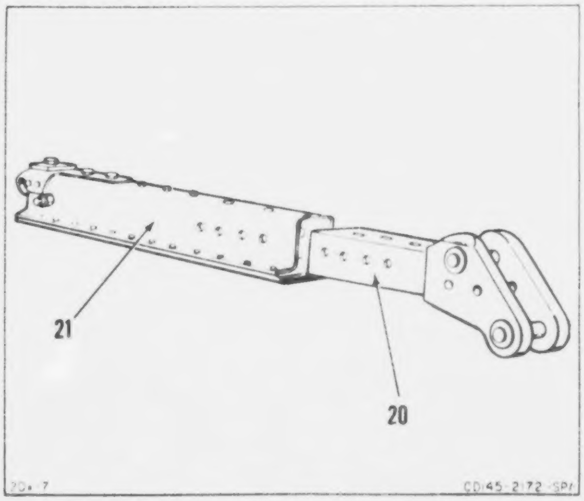
3. Remove nut (6) and washer (7).
4. Remove screw (8).
5. Remove two nuts (9) and washers (10).
6. Remove two bolts (11) and washers (12).
7. **Remove fitting (13), fitting base (14) and spacer (15).** Remove shim (16) if installed.


11
12
13
14
6
7
16
A
15
9
10
8
VIEW A

8. Remove four nuts (17), washers (18), and bolts (19).


17
18
19
CD145-2171-SPA

9. **Remove receiver (20)** from support (21).

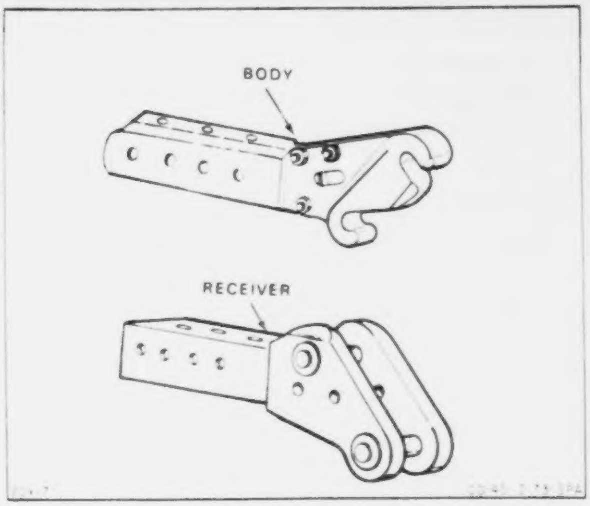

21
20
CD145-2172-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-264 INSTALL CARGO DOOR BODY AND RECEIVER SET 2-264



INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lubricant (E235)

Parts:
Shims

Personnel Required:
67U10 Medium Helicopter Repairer

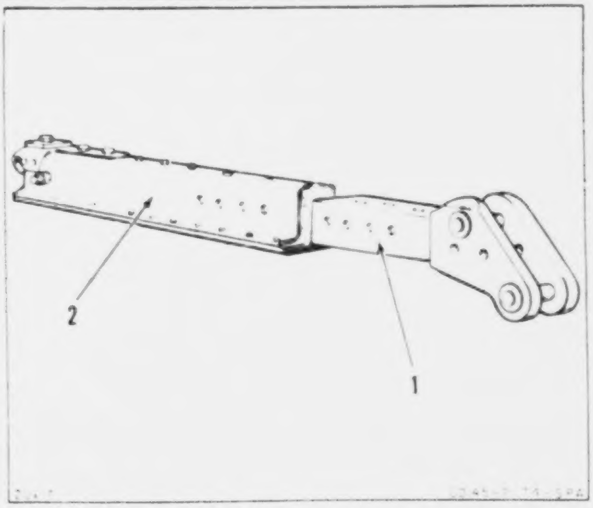
References:
TM 55-1520-240-23P

NOTE

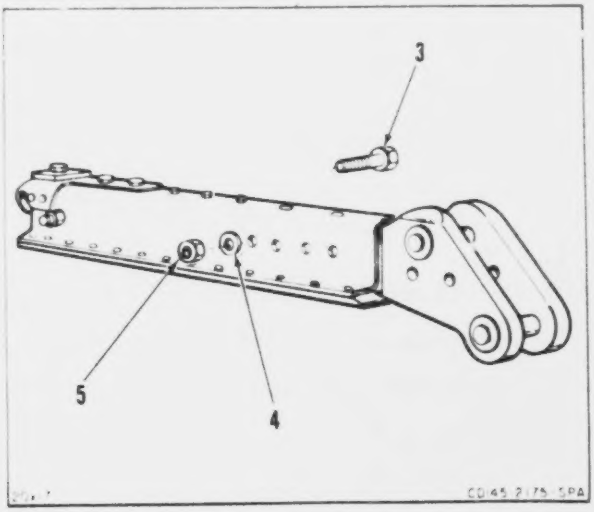
Body and receiver must be replaced as a matched set.

INSTALL RECEIVER

1. **Install receiver (1)** in forward support (2). Align holes in receiver and support.



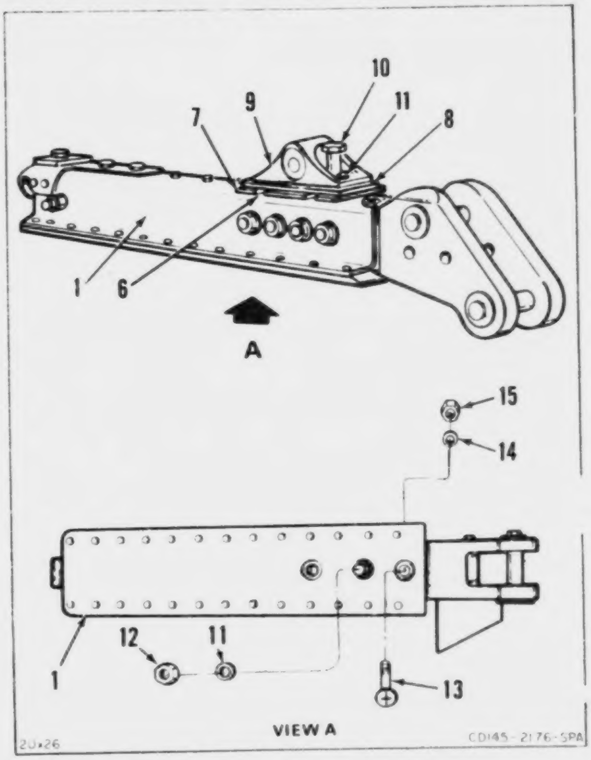
2. **Install four bolts (3),** washers (4), and nuts (5).



GO TO NEXT PAGE

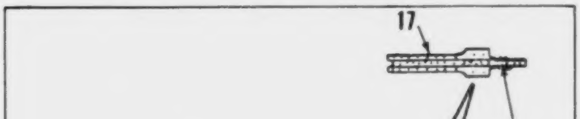
2-264 INSTALL CARGO DOOR BODY AND RECEIVER SET (Continued) 2-264

3. **Position spacer (6), shims (7), if used, fitting base (8), and fitting (9)** on receiver (1) as shown. **Install two bolts (10).**
4. Install two washers (11), and nuts (12) on bolts (10).
5. Install screw (13) with screw head on bottom of receiver (1). Install washer (14) and nut (15) on screw.


10
9
11
7
8
1
6
A
15
14
1
12
11
13
VIEW A
20x26
CD145-2176-SPA

INSTALL BODY

6. **Install body (16)** in aft support (17).
7. **Install 11 bolts (18),** 22 washers (19 and 20), and nuts (21).
8. Lubricate mouth (22) of body (16) with lubricant (E235).


17
16
18
19
20
17
16
21
A
22
VIEW A
16
20x26
CD145-2177-SPA

FOLLOW-ON MAINTENANCE:

Install track support (Task 2-262).

Adjust cargo door (Task 2-272).

END OF TASK

2-265 REMOVE CARGO DOOR CHAIN AND WIRE ROPE 2-265

INITIAL SETUP

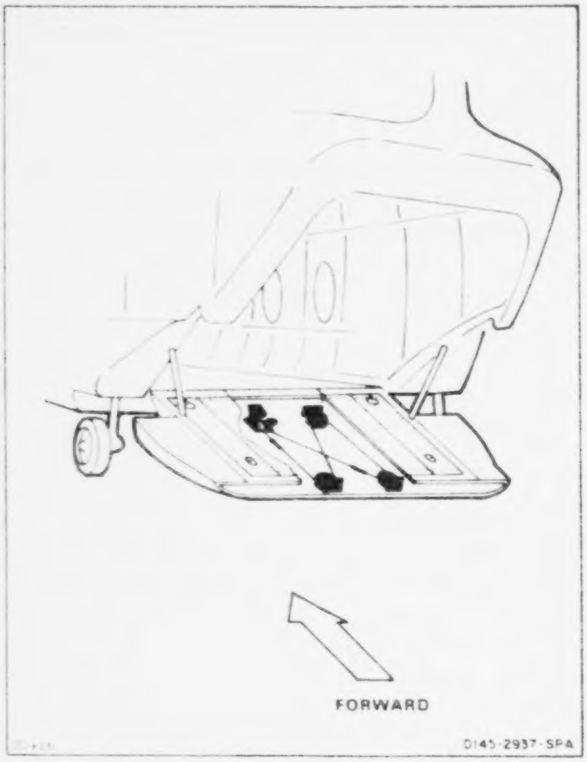
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Drift, 1/8-inch diameter

Materials:
None

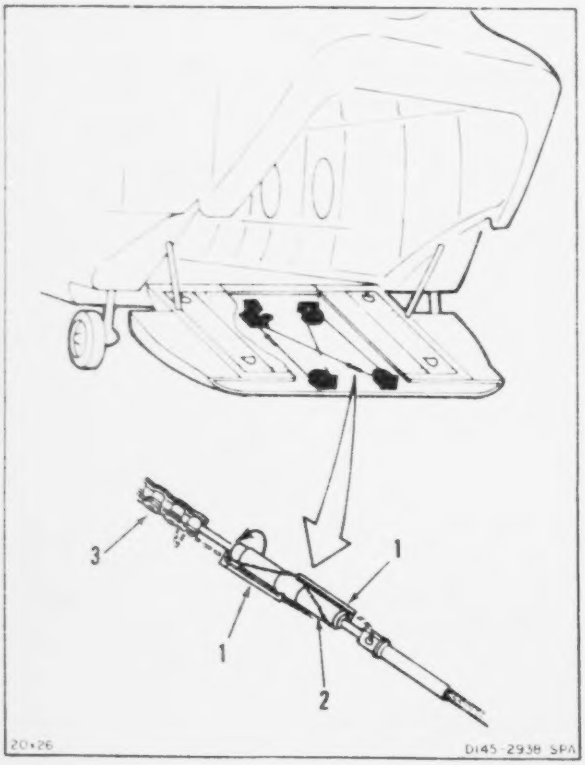
Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Lowered and Ramp Door Retracted (TM 55-1520-240-T)
Cargo Ramp Extensions Removed (Task 2-238)
Cargo Ramp Center Floor Panel Removed (Task 2-256)



1. Cut lockwire and remove two clips (1) from turnbuckle (2).

2. **Remove turnbuckle (2)** from chain and wire rope (3). Turn counterclockwise. Use drift through hole.



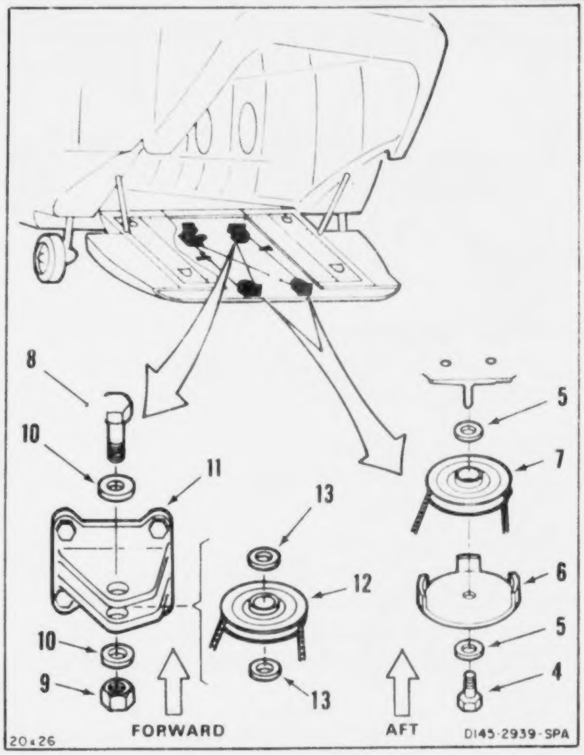
GO TO NEXT PAGE

2-265 REMOVE CARGO DOOR CHAIN AND WIRE ROPE (Continued) 2-265

3. **Remove two bolts (4)** and four washers (5) from two aft cable guides (6). **Remove aft cable guides and pulleys (7).**

4. **Remove bolt (8),** nut (9), and two washers (10) from bracket (11).

5. Slide pulley (12) from bracket (11) and remove two washers (13). **Remove pulley.**


8
10
11
13
12
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10
9
5
7
6
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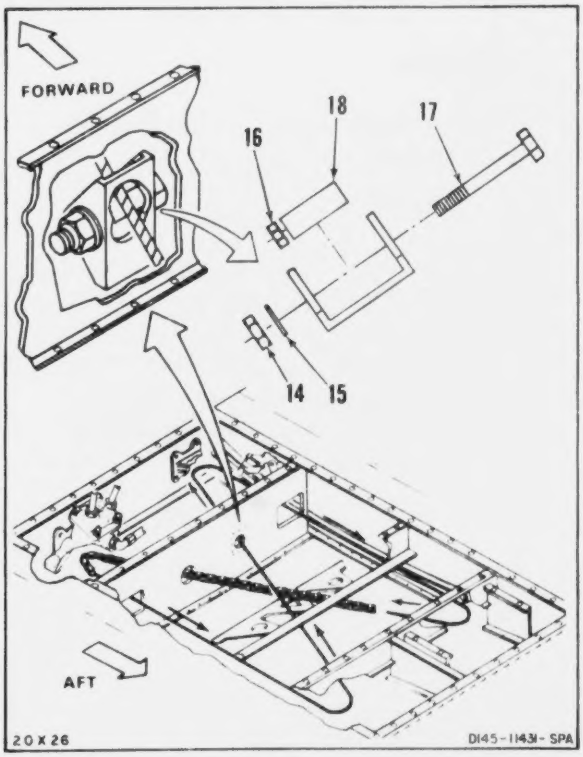
4
FORWARD
AFT
20x26
D145-2939-SPA

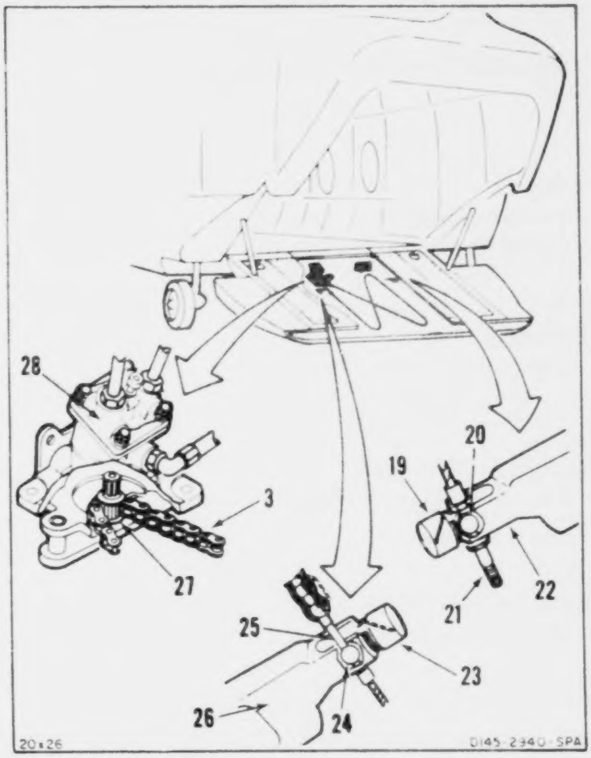
6. **Remove** nut (14), washer (15), nut (16), bolt (17), and **spacer** (18).


FORWARD
18
17
16
14
15
AFT
20 X 26
D145-11431-SPA

GO TO NEXT PAGE

2-265 REMOVE CARGO DOOR CHAIN AND WIRE ROPE (Continued) 2-265

7. Cut lockwire and remove cap (19).
8. **Remove ball (20)** of terminal (21) from link (22).
9. Cut lockwire and remove cap (23).
10. **Remove ball (24) of terminal (25)** from link (26).
11. **Remove chain of wire rope (3)** from around sprocket (27) at bottom of actuator (28).
12. With aid of helper **remove chain and wire rope (3).**


28
3
27
19
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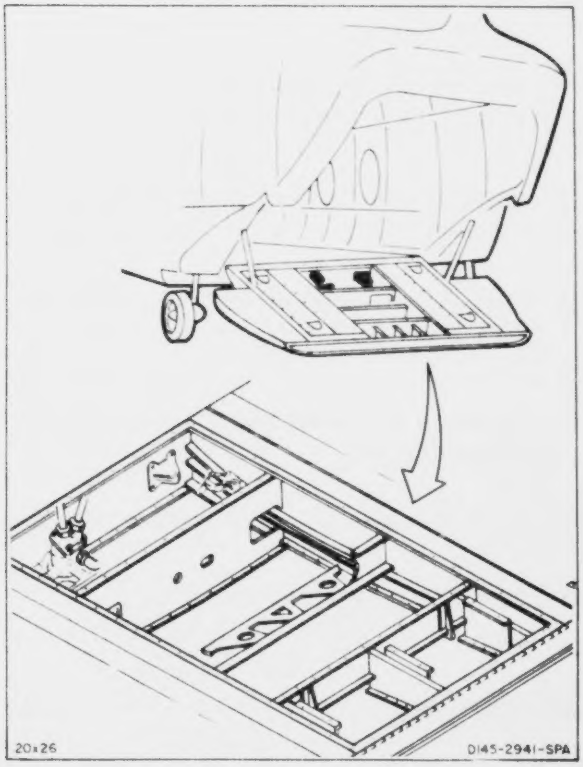
23
26
24
20x26
DI45-2940-SPA

FOLLOW-ON MAINTENANCE:

None


20x26
DI45-2941-SPA

END OF TASK

2-266 DISASSEMBLE CHAIN AND WIRE ROPE 2-266

INITIAL SETUP

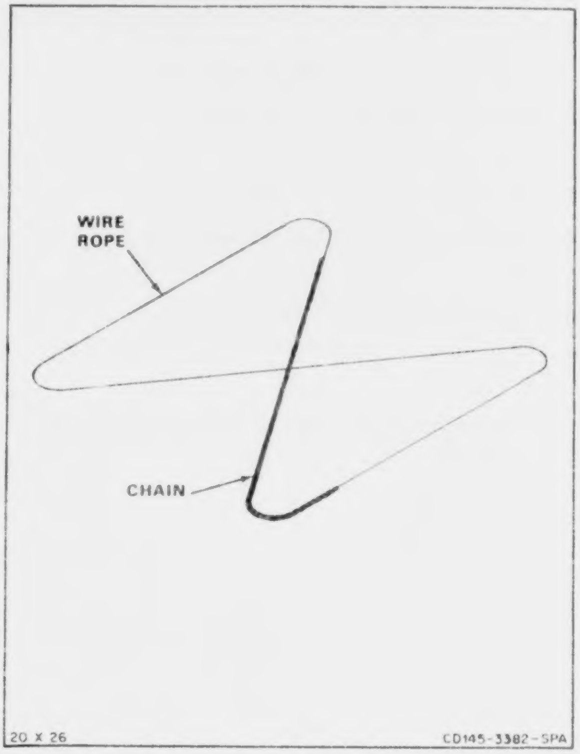
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

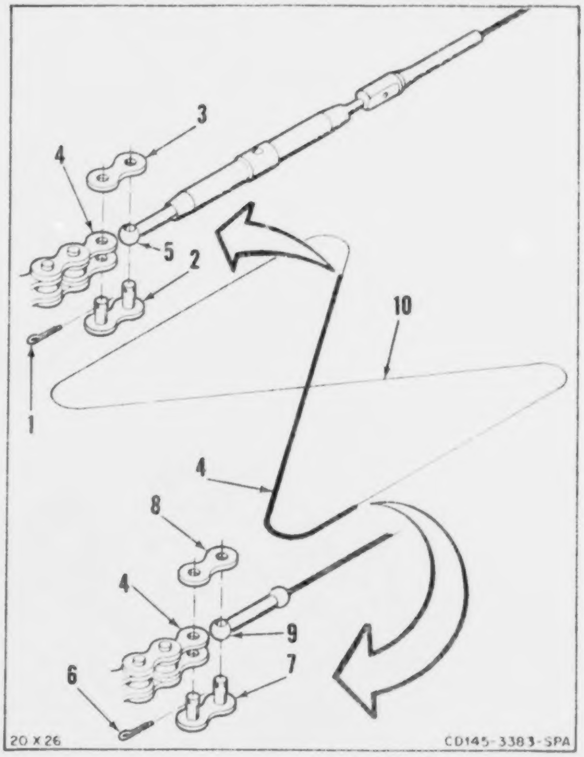
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


WIRE ROPE
CHAIN
20 X 26
CD145-3382-SPA

1. Remove two cotter pins (1) from ends of connecting link (2). Remove master link (3).
2. **Remove connecting link (2)** from chain (4) and terminal (5).
3. Remove two cotter pins (6) from ends of connecting link (7). Remove master link (8).
4. **Remove connecting link (7)** from chain (4) and terminal (9).
5. **Separate chain (4) and wire rope (10).**


3
4
5
2
10
1
4
8
4
9
6
7
20 X 26
CD145-3383-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-267 ASSEMBLE CHAIN AND WIRE ROPE 2-267

INITIAL SETUP

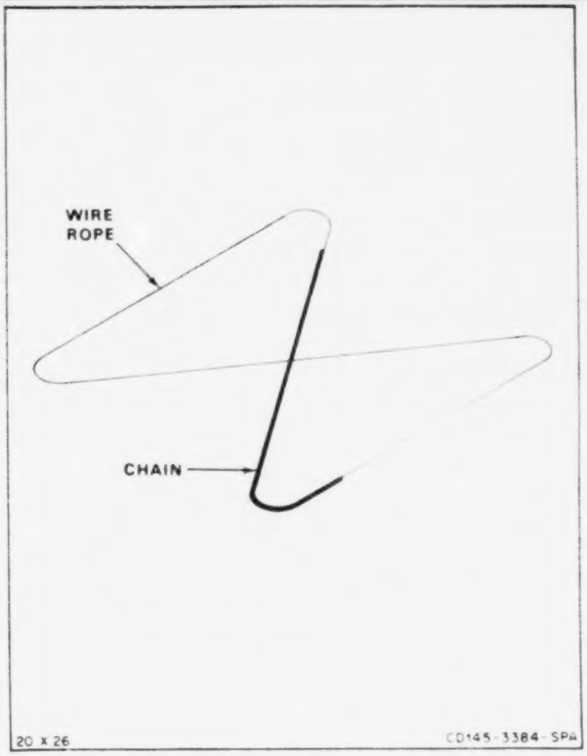
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

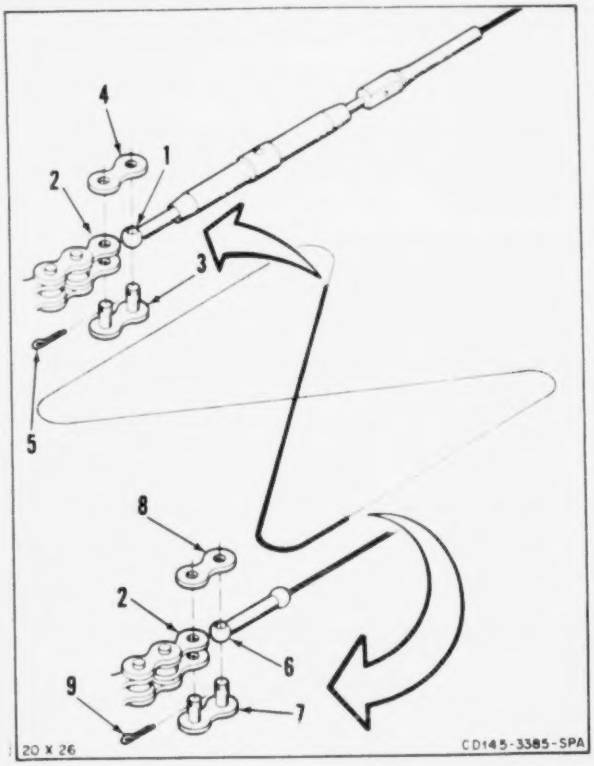
Materials:
None

Parts:
Cotter Pins

Personnel Required:
67U10 Medium Helicopter Repairer



1. **Position terminal (1)** on chain (2).
2. **Install connecting link (3)** through chain (2) and terminal (1).
3. **Position master link (4)** over connecting link (3). Install two cotter pins (5) in ends of connecting link.
4. **Position terminal (6)** on chain (2).
5. **Install connecting link (7)** through chain (2) and terminal (6).
6. **Position master link (8)** over connecting link (7). Install two cotter pins (9) in ends of connecting link.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-268 INSTALL CARGO DOOR CHAIN AND WIRE ROPE 2-268

INITIAL SETUP

Applicable Configurations:
All

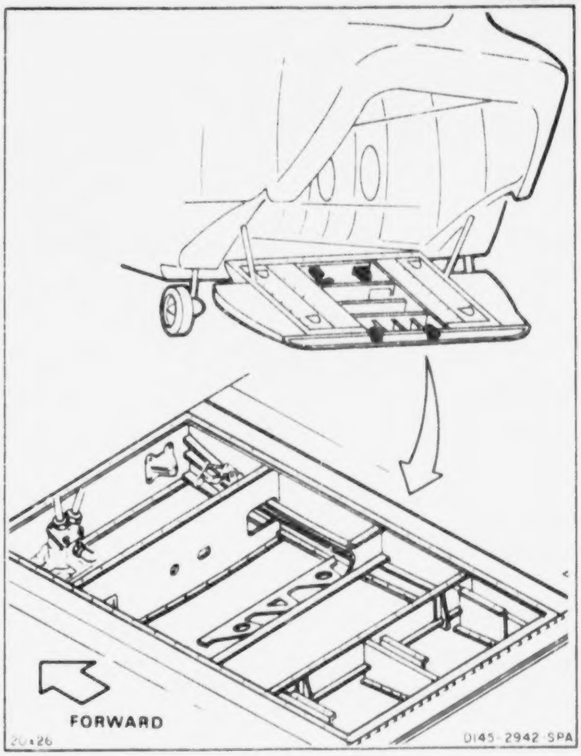
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Tensionmeter, 10 to 200 Pounds
Drift, 1/8-inch diameter

Materials:
Lockwire (E229)
Lockwire (E231)

Parts:
Retaining Clips (2)

Personnel Required:
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P



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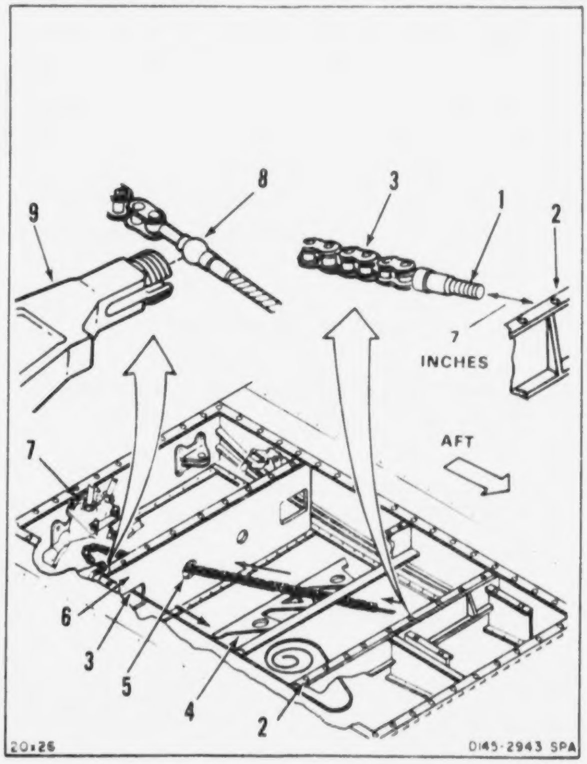
1. **Position end of chain terminal (1) 7-inches** from centerline of aft bulkhead (2).

2. **Route chain of wire rope (3)** diagonally through gate (4) and hole (5) in forward bulkhead (6).

3. **Route chain of wire rope (3)** under actuator (7). Terminal ball (8) shall be aligned with link (9).

4. **Route wire rope (3) aft** through forward bulkhead (6).

5. **Route wire rope (3)** under aft bulkhead (2).



GO TO NEXT PAGE

2-268 INSTALL CARGO DOOR CHAIN AND WIRE ROPE (Continued) 2-268

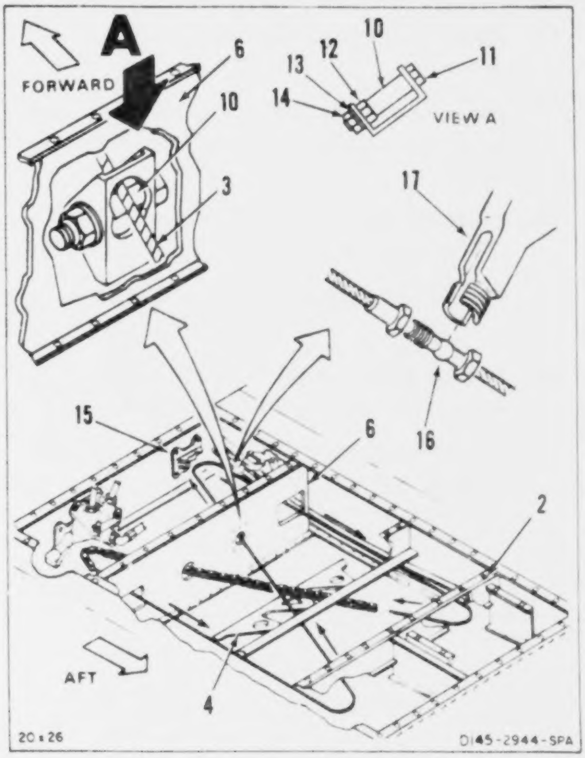
6. **Route wire rope (3)** diagonally through gate (4) and over chain of wire rope.

7. **Route wire rope (3)** through hole in forward bulkhead (6). Install spacer (10). Use bolt (11), nut (12), washer (13), and nut (14).

8. **Route wire rope (3)** under forward pulley bracket (15). **Terminal ball (16)** shall be aligned with link (17).

9. **Route wire rope (3)** aft through forward bulkhead (6).

10. **Route wire rope (3)** under aft bulkhead (2).


A
FORWARD
6
10
3
10
12
11
13
14
VIEW A
17
16
15
6
2
AFT
4
20 x 26
D145-2944-SPA

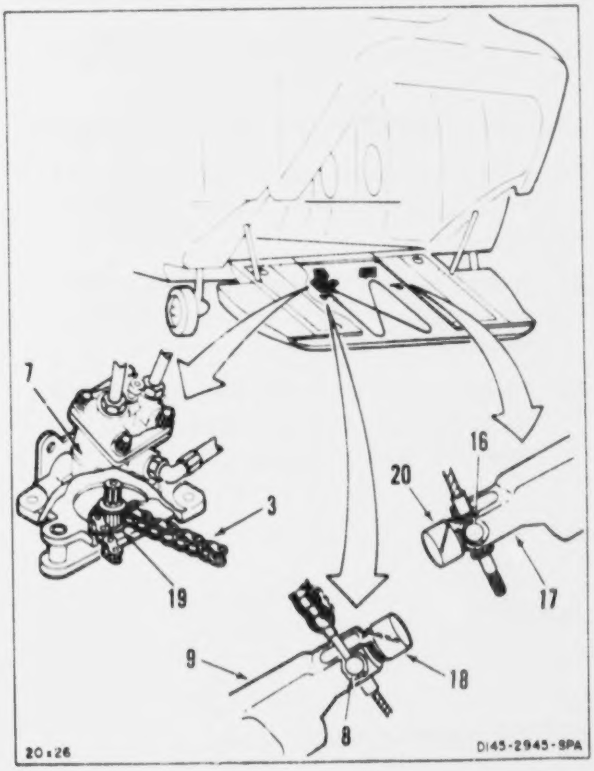
11. **Install terminal ball (8)** in link (9).

12. **Install cap (18)** on link (9) hand-tight. Lockwire cap using lockwire (E229).

13. **Install chain of wire rope (3)** around sprocket(19)onbottomofactuator(7).

14. **Install terminal ball (16)** in link (17).

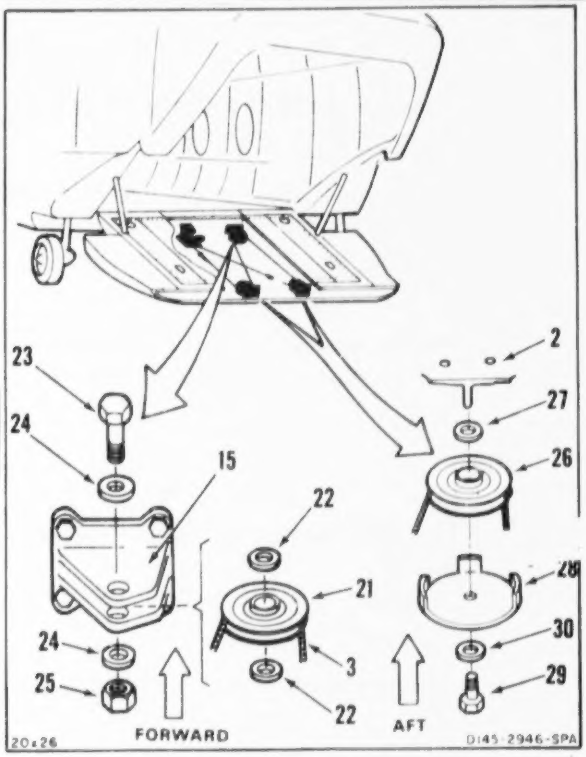
15. **Install cap (20)** on link (17) hand-tight. Lockwire cap using lockwire (E229).


7
3
19
16
20
17
9
18
8
20 x 26
D145-2945-SPA

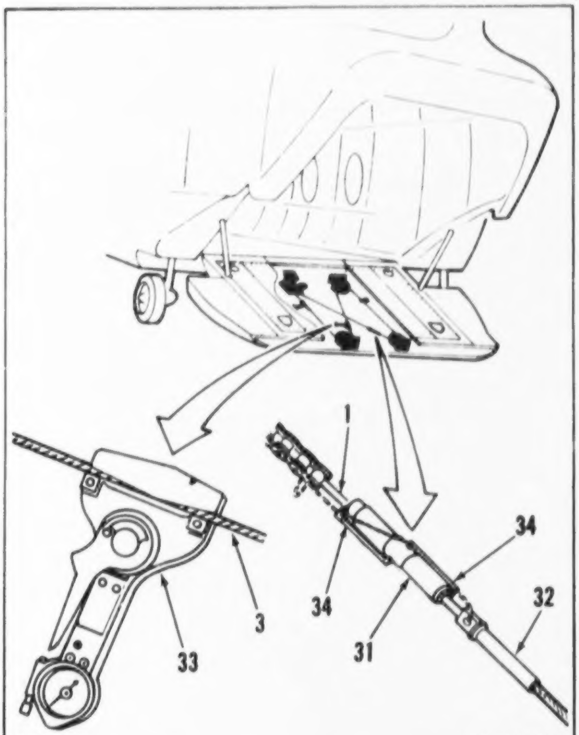
GO TO NEXT PAGE

2-268 INSTALL CARGO DOOR CHAIN AND WIRE ROPE (Continued) 2-268

16. **Route wire rope (3)** around forward pulley (21).
17. **Place washers (22)** on top and bottom of pulley (21) and **position pulley** in bracket (15).
18. **Install bolt (23),** two washers (24) and nut (25) through bracket (15) and pulley (21).
19. **Route wire rope (3)** around two aft pulleys (26).
20. **Position two washers (27),** pulleys (26), and guides (28) on aft bulkhead (2).
21. **Install two bolts (29)** and washers (30) through guides (28) and pulleys (26).


23
24
15
22
21
24
25
3
22
FORWARD
AFT
2
27
26
28
30
29
20x26
D145-2946-SPA

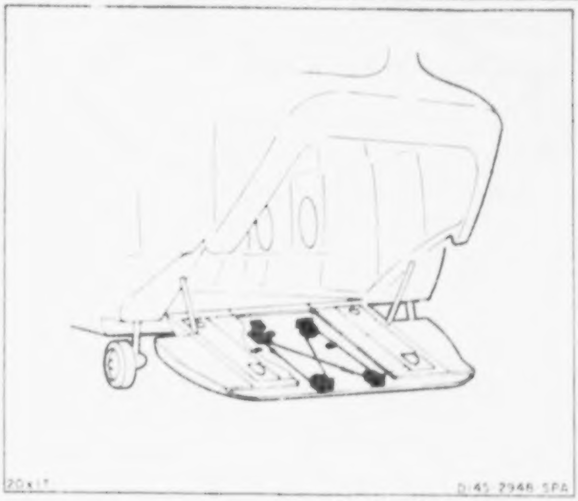
22. **Install turnbuckle (31)** on chain terminal (1) and wire rope terminal (32).
23. **Install tensionmeter (33)** on wire rope (3).
24. With aid of helper **adjust turnbuckle (31)** for 50 pounds of tension on wire rope (3). Use drift.
25. **Install two retaining clips (34)** on turnbuckle (31). Lockwire turnbuckle using lockwire (E206).
26. **Check tension of wire rope (3).** If tension is not 50 pounds, repeat steps 24 and 25. **Remove tension meter (33).**


1
34
32
34
31
3
33
20x26
D145-2947-SPA

INSPECT

GO TO NEXT PAGE

2-268 INSTALL CARGO DOOR CHAIN AND WIRE ROPE (Continued) 2-268



FOLLOW-ON MAINTENANCE:

Perform operational check of cargo door (TM 55-1520-240-T)

Install cargo ramp center floor panel (Task 2-257)

Install cargo ramp extensions (Task 2-244)

END OF TASK

2-269 REMOVE CARGO DOOR RELEASE 2-269

INITIAL SETUP

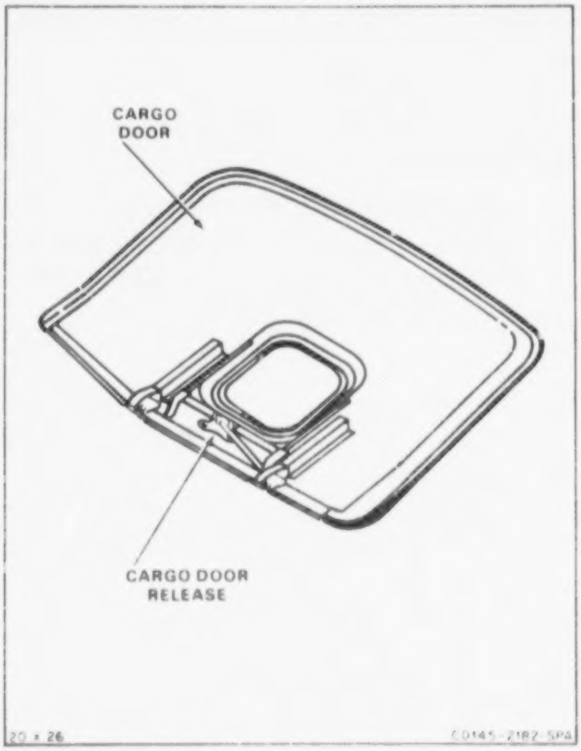
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

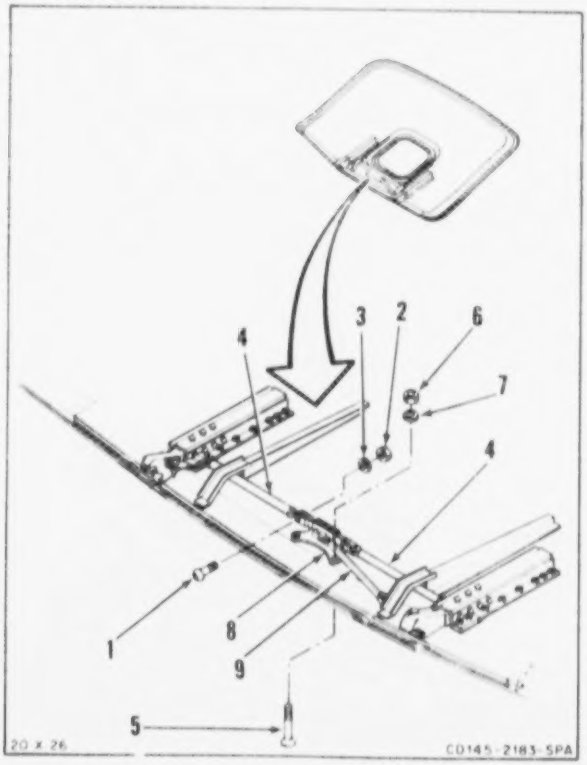
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Off Helicopter Task


CARGO DOOR
CARGO DOOR RELEASE
20 x 26
CD145-2182-SPA

1. **Remove two bolts (1),** nuts (2), and washers (3) from connecting links (4).
2. **Remove four screws (5),** nuts (6), and washers (7) from release (8).
3. **Pull handle (9)** upward. Remove release (8).


4
3
2
6
7
4
1
8
9
5
20 x 26
CD145-2183-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-270 INSTALL CARGO DOOR RELEASE

INITIAL SETUP

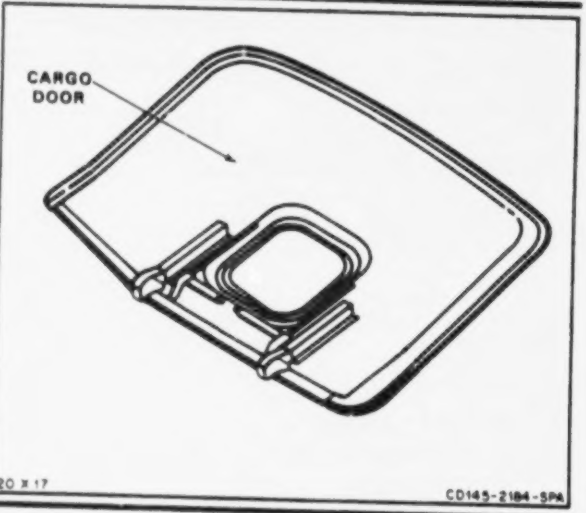
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

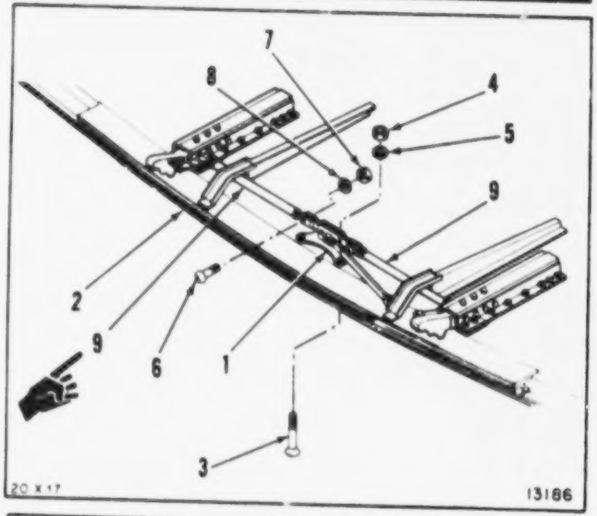
Materials:
Lubricant (E236)

Personnel Required:
Medium Helicopter Repairer (2)

References:
TM 55-1520-240-23P


CARGO DOOR
20 X 17
CD145-2184-SPA

1. **Position release (1)** on cargo door (2).
2. **Install four screws (3),** nuts (4), and washers (5) on release (1).
3. **Install two bolts (6),** nuts (7), and washers (8) on links (9).


7
8
4
5
9
2
9
6
1
3
20 X 17
13186

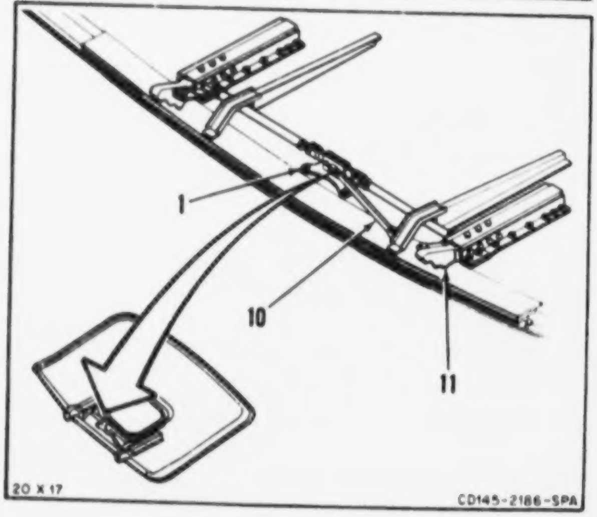
4. **Lubricate** release (1) with lubricant (E236).
5. **Raise handle (10) up** and make sure bodies (11) rotate freely.
6. **Set handle (10)** to locked position. Secure with lockwire (C228).

FOLLOW-ON MAINTENANCE:

Install cargo door (Task 2-271).

Adjust cargo door release (Task 2-273).

Perform functional test of release (Task 2-274).


1
10
11
20 X 17
CD145-2186-SPA

END OF TASK

2-271 INSTALL CARGO DOOR 2-271

INITIAL SETUP

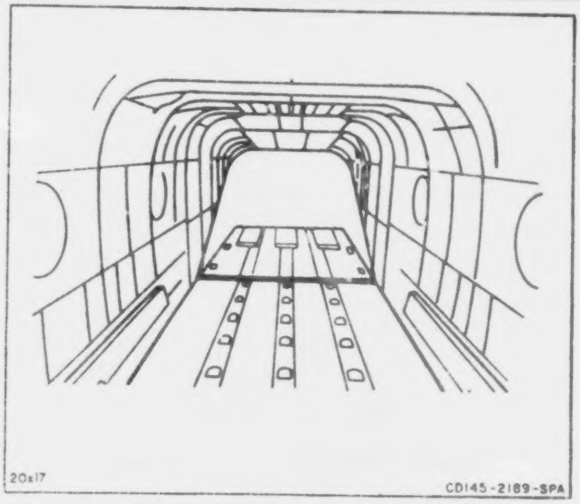
Applicable Configurations:
All

Tools:
None

Materials:
None

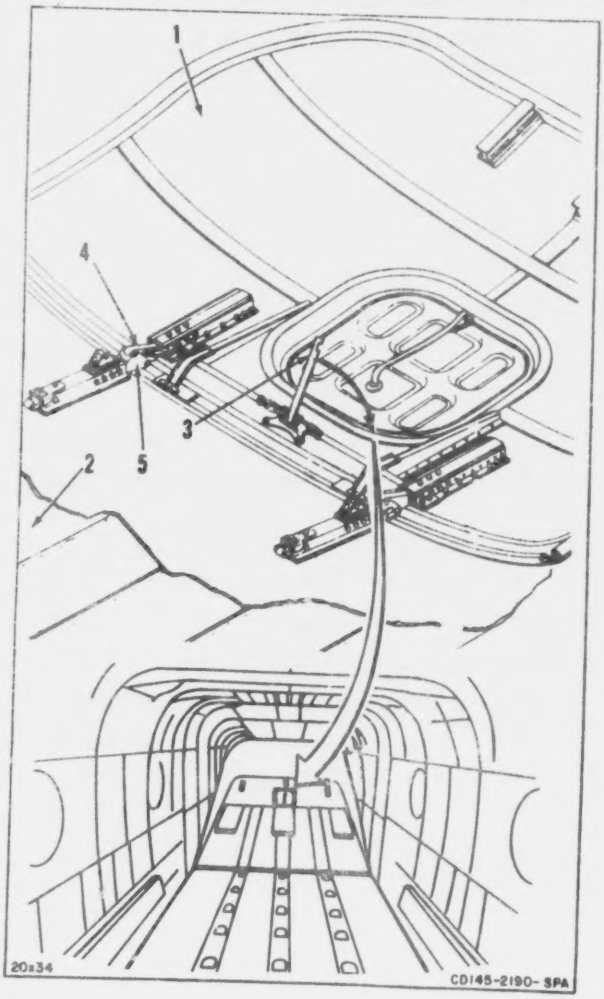
Personnel Required:
67U10 Medium Helicopter Repairer (3)
67U30 Inspector

References:
TM 55-1520-240-23P



1. **Position cargo door (1)** on end of ramp (2) with aid of helpers.
2. Lower handle (3) until bodies lock (4) on receivers (5).
3. **Lock handle (3).**

INSPECT



FOLLOW-ON MAINTENANCE:

Cargo door release functional test (Task 2-274).

Adjust cargo door (Task 2-272).

END OF TASK

2-272 ADJUST CARGO DOOR 2-272

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Materials:

Shims

Personnel Required:

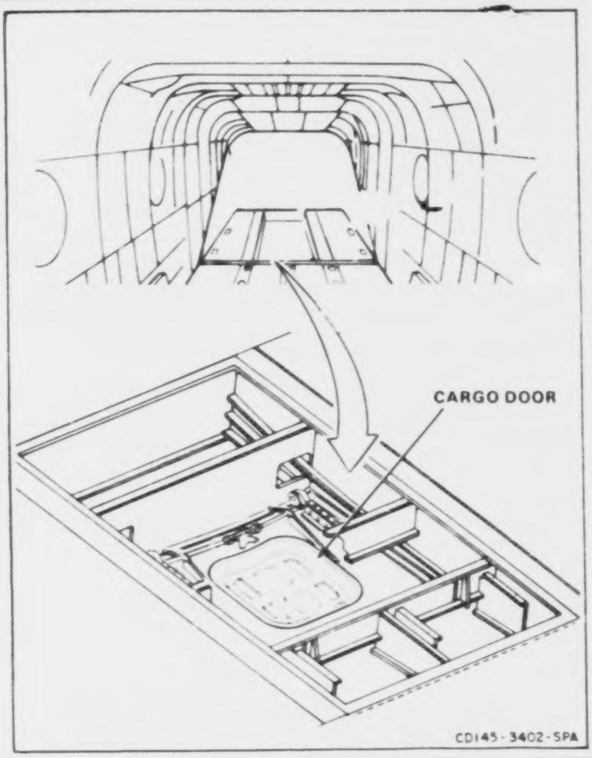
67U10 Medium Helicopter Repairer
67U20 Medium Helicopter Repairer

References:

TM 55-1520-240-23P
TM 55-1520-240-T
Task 2-271
Task 2-260

Equipment Conditions:

Battery Disconnected (Task 1-39)
Electrical Power Off
Utility Hydraulic Power On
Ramp Floor Center Panel Removed (Task 2-247)
Ramp Extensions Removed (Task 2-238)



STOP BOLT ADJUSTMENT

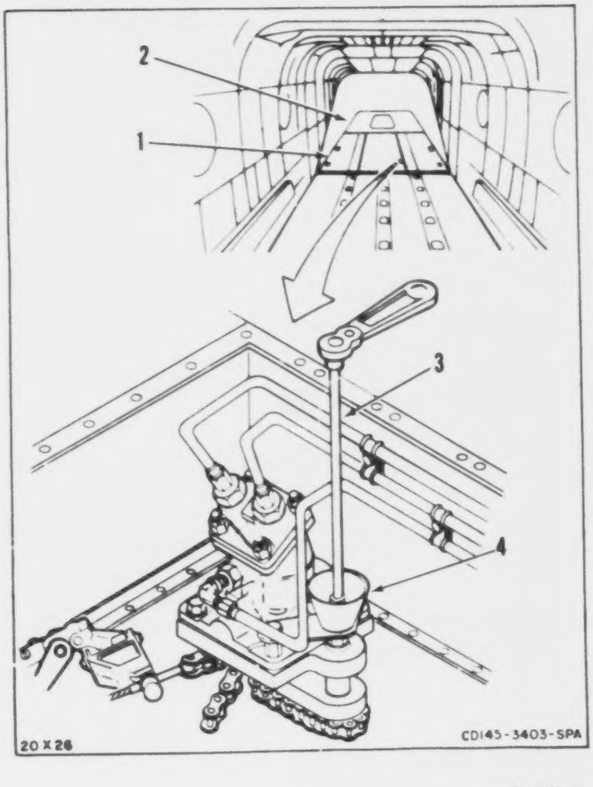
1. **Position ramp (1)** so that cargo door (2) can be extended without touching ground (TM-55-1520-240-T).

NOTE

Crank is stowed at station 340 on left side.

2. Insert crank (3) into cargo door actuator shaft (4).

3. Turn crank (3) clockwise. **Extend door (2)** as far as it will go.



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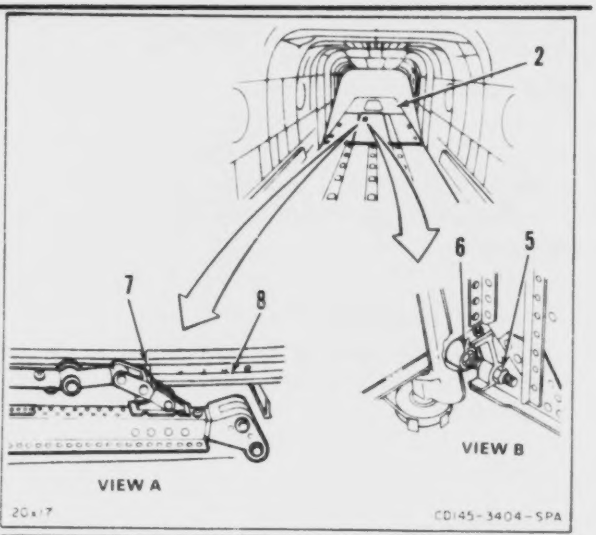
2-272 ADJUST CARGO DOOR (Continued) 2-272


2
6
5
7
8
VIEW B
VIEW A
20x17
CD145-3404-SPA

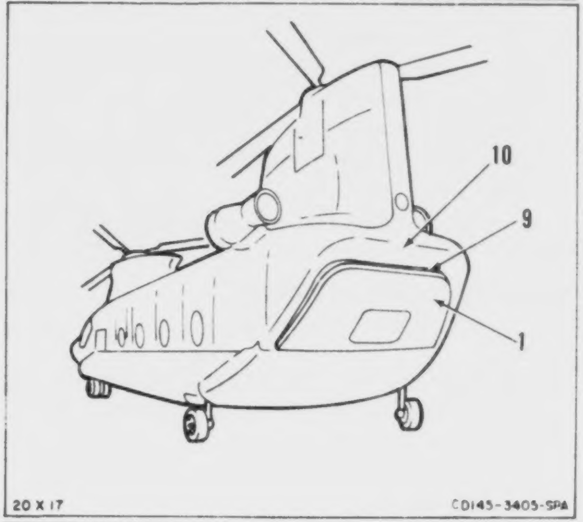
NOTE

Procedure is same to adjust right or left stop bolt. Right stop bolt is shown here.

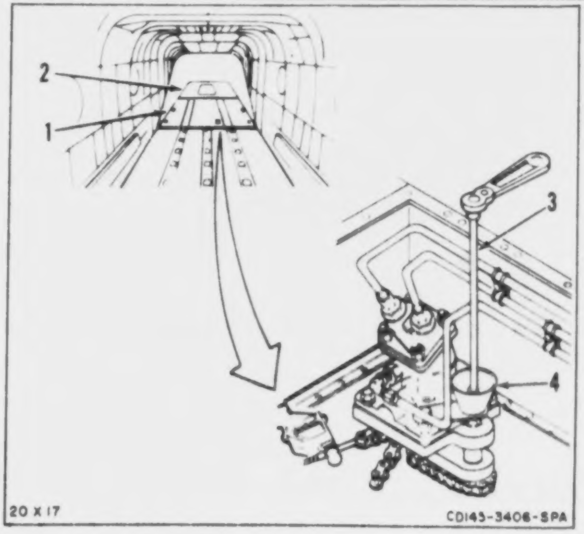
4. **Loosen nut (5). Turn stop bolt (6)** in or out, as needed, until roller bearing (7) sets on bottom of track (8). **Tighten nut (5).**

INSPECT

CARGO DOOR SEAL ADJUSTMENT


10
9
1
20 X 17
CD145-3405-SPA

5. **Raise ramp (1)** until door seal (9) makes light contact with fuselage (10) (TM 55-1520-240-T). **Mark places** seal (9) does not make contact. **Mark places** contact is not uniform.


2
1
3
4
20 X 17
CD145-3406-SPA

6. **Lower ramp (1)** to position where door (2) can be extended (TM 55-1520-240-T).

NOTE

Crank is stowed at station 340 on left side.

7. Insert crank (3) into cargo door actuator shaft (4).
8. Turn crank (3) clockwise. **Extend door (2)** two-thirds out.

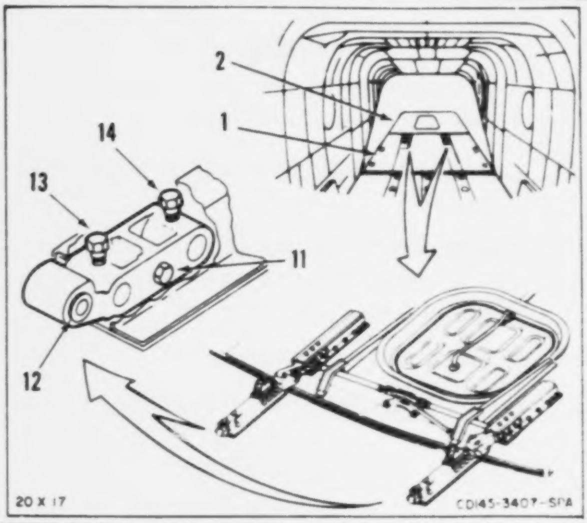
GO TO NEXT PAGE

2-272 ADJUST CARGO DOOR (Continued) 2-272

NOTE

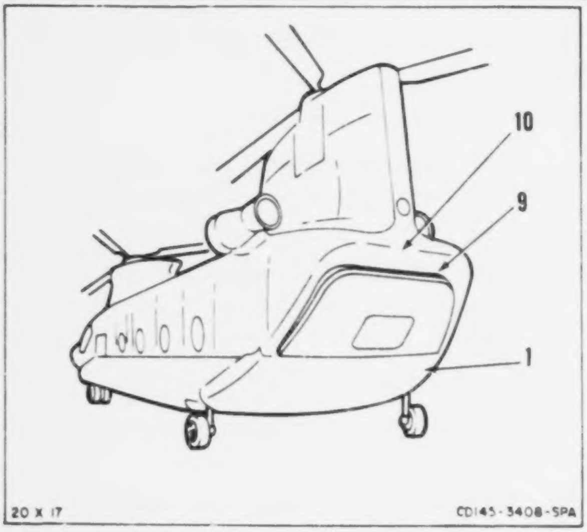
Procedure is same to adjust receivers on both sides. Right side adjustment is shown here.

9. Loosen bolt (11) on idler link fitting (12). **To raise door (2), tighten bolt (13)** and loosen bolt (14) an equal number of turns.
10. **To lower door (2), tighten bolt (14)** and loosen bolt (13) an equal number of turns.
11. Tighten bolt (11).



12. **Raise ramp (1)** until door seal (9) makes light contact with fuselage (10) (TM 55-1520-240-T).

INSPECT



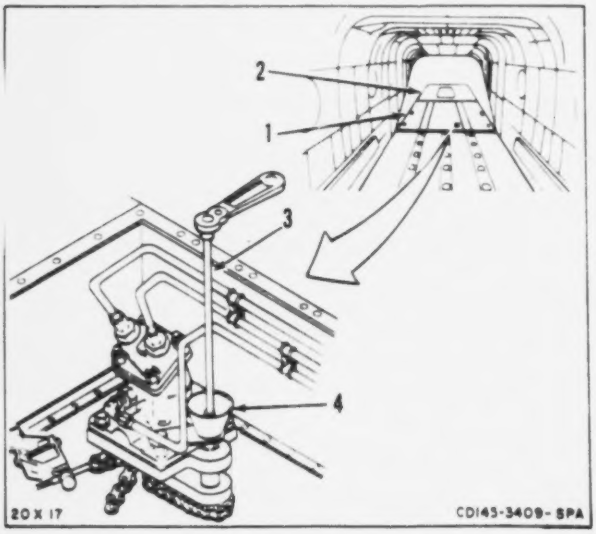
CARGO DOOR FLUSH WITH RAMP ADJUSTMENT

13. **Lower ramp (1)** to position where door (2) can be extended (TM 55-1520-240-T).

NOTE

Crank is stowed at station 340 on left side.

14. Insert crank (3) into cargo door actuator shaft (4).
15. Turn crank (3) clockwise and **extend door (2)** as far as it will go.
16. **Remove door (2).** (Task 2-260).



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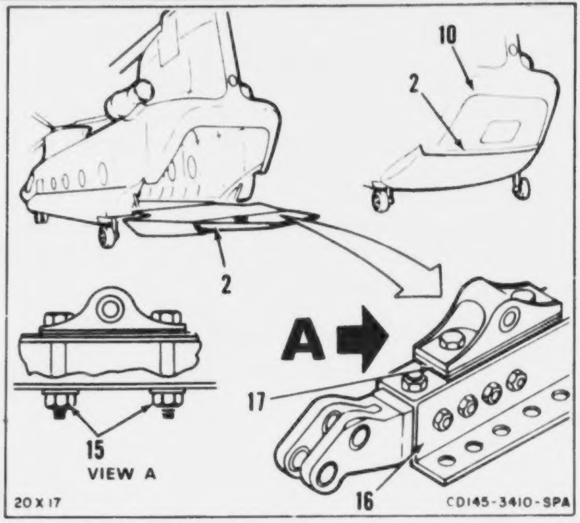
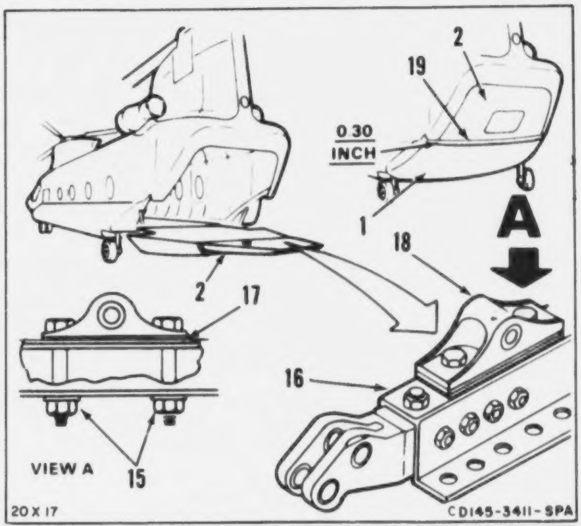

10
2
2
A
17
15
VIEW A
16
20 X 17
CD145-3410-SPA

NOTE

Procedure is same for both receivers. Left receiver is shown here.

17. **Loosen two nuts (15)** on bottom of receiver (16).
18. **Add shims (17)** to pull door (2) closer to fuselage (10). **Remove shims (17)** to force door (2) from fuselage (10).
19. **Tighten two nuts (15).**
20. **Install cargo door (2)** on ramp (1). (Task 2-271).

INSPECT


2
19
0.30 INCH
1
A
18
2
17
16
VIEW A
15
20 X 17
CD145-3411-SPA

GAP ADJUSTMENT BETWEEN RAMP AND CARGO DOOR

21. **Loosen two nuts (15).**
22. **Move fitting (18) aft** if gap (19) between cargo ramp (1) and door (2) is smaller than **0.30-inch.**
23. **Move fitting (18) forward** if gap (19) between ramp (1) and door (2) is larger than **0.30 inch.**
24. **Tighten two nuts (15).**
25. **Install cargo door (2)** on ramp (1) (Task 2-271).
26. Raise ramp (1) (TM 55-1520-240-T).

INSPECT

20 X 17
CD145-3412-SPA

FOLLOW-ON MAINTENANCE:

Install ramp floor panel (Task 2-249).

Install ramp extension (Task 2-244).

Remove hydraulic power.

END OF TASK

2-273 ADJUST CARGO DOOR RELEASE ASSEMBLY 2-273

INITIAL SETUP

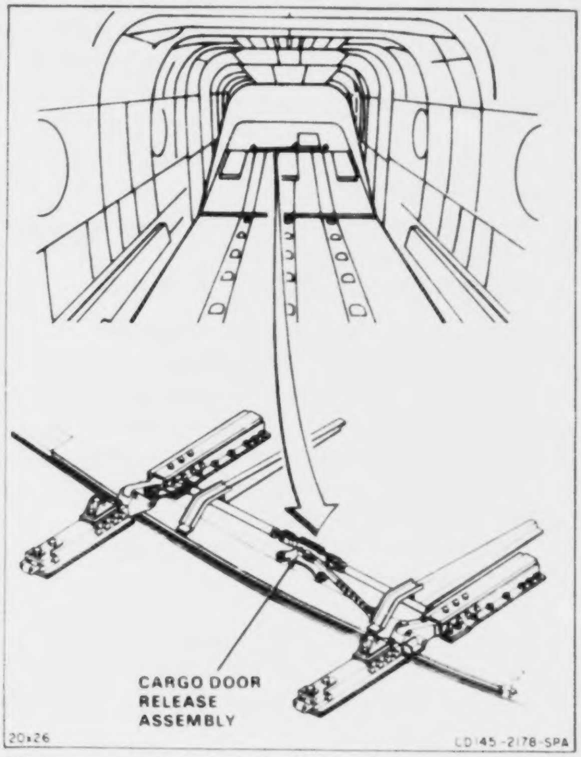
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

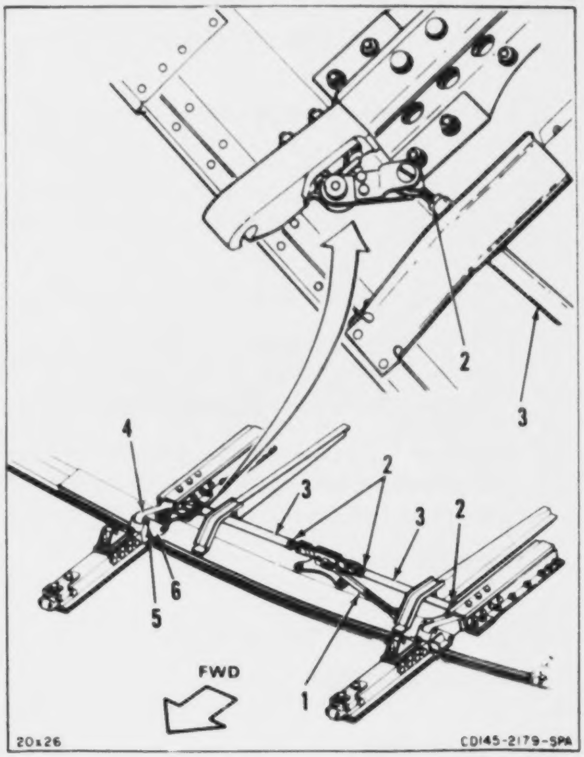
Materials:
None

Personnel Required:
67U20 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Extensions Folded and Cargo Ramp Level (TM 55-1520-240-T)
Cargo Door Fully Extended (TM 55-1520-240-T)


CARGO DOOR RELEASE ASSEMBLY
20x26
CD145-2178-SPA

1. **Make sure handle (1)** is in locked position.
2. **Loosen four nuts (2)** on connecting links (3).
3. **Turn connecting links (3)** as needed to tighten bodies (4) against pins (5) in receivers (6).
4. **Tighten nuts (2).**


2
3
4
3
2
3
2
6
5
FWD
1
20x26
CD145-2179-SPA

FOLLOW-ON MAINTENANCE:

Perform functional test of release assembly (Task 2-274).

Adjust cargo door (Task 2-272).

END OF TASK

2-274 CARGO DOOR RELEASE FUNCTIONAL TEST 2-274

INITIAL SETUP

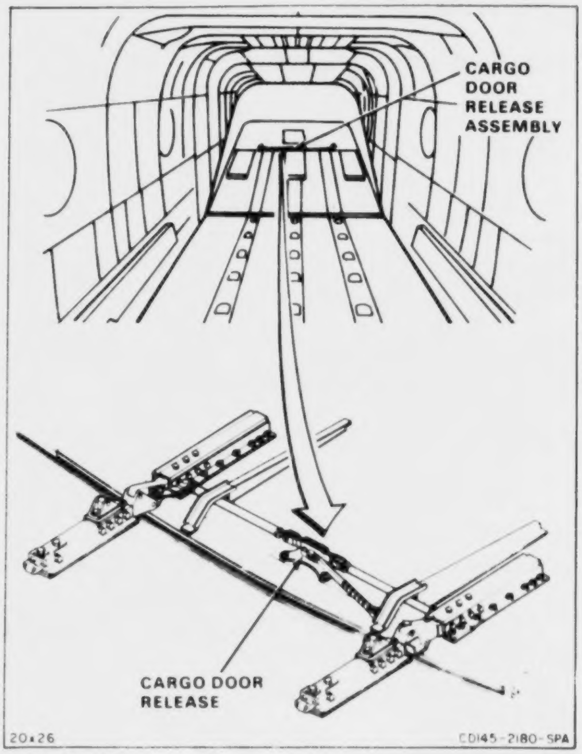
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Dial Indicating Scale, 0 To 75-Pounds

Materials:
Cloths (E135)

Personnel Required:
67U10 Medium Helicopter Repairer (3)

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Cargo Ramp Extensions Folded and Cargo Ramp Level (TM 55-1520-240-T)
Cargo Door Fully Extended (TM 55-1520-240-T)

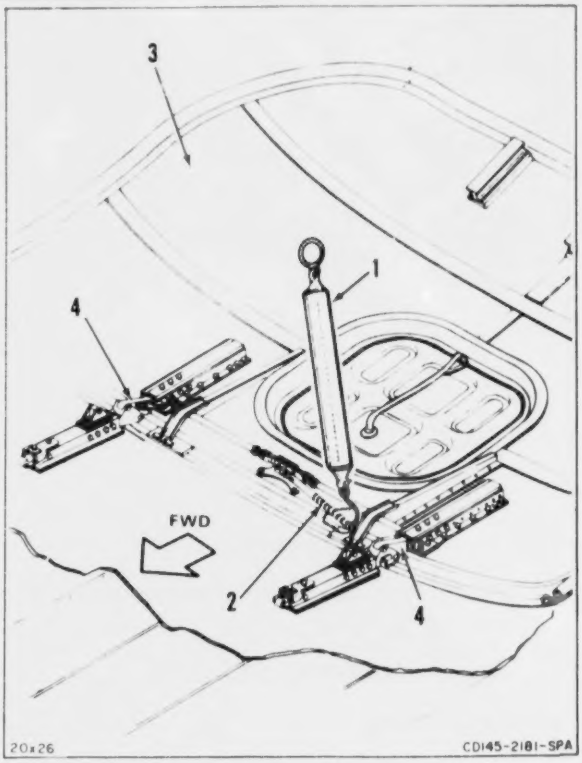


1. Cover hook end of scale (1) with cloths (E135).
2. **Position hook end of scale (1)** on end of handle (2).
3. Have helpers support door (3). Make sure only weight of door is on bodies (4).

CAUTION

Do not pull release handle more than 135 degrees, or damage to release mechanism can occur.

4. **Pull scale (1)** slowly and evenly. Handle (2) should unlock bodies (4) and release door (3). Maximum force shall not exceed 50 pounds.
5. **Remove scale (1).**



FOLLOW-ON MAINTENANCE:

Install cargo door (Task 2-271).

END OF TASK

2-274.1 INSPECT COMBINING TRANSMISSION SUPPORT FITTINGS AND LONGITUDINAL BEAMS 2-274.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Airframe Repairer's Tool Kit,
NSN 5180-00-323-4876

Materials:

Aliphatic Naphtha (E245)
Cloths (E120)
Sealant (E336)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 43-0103
TM 55-1520-240-23P

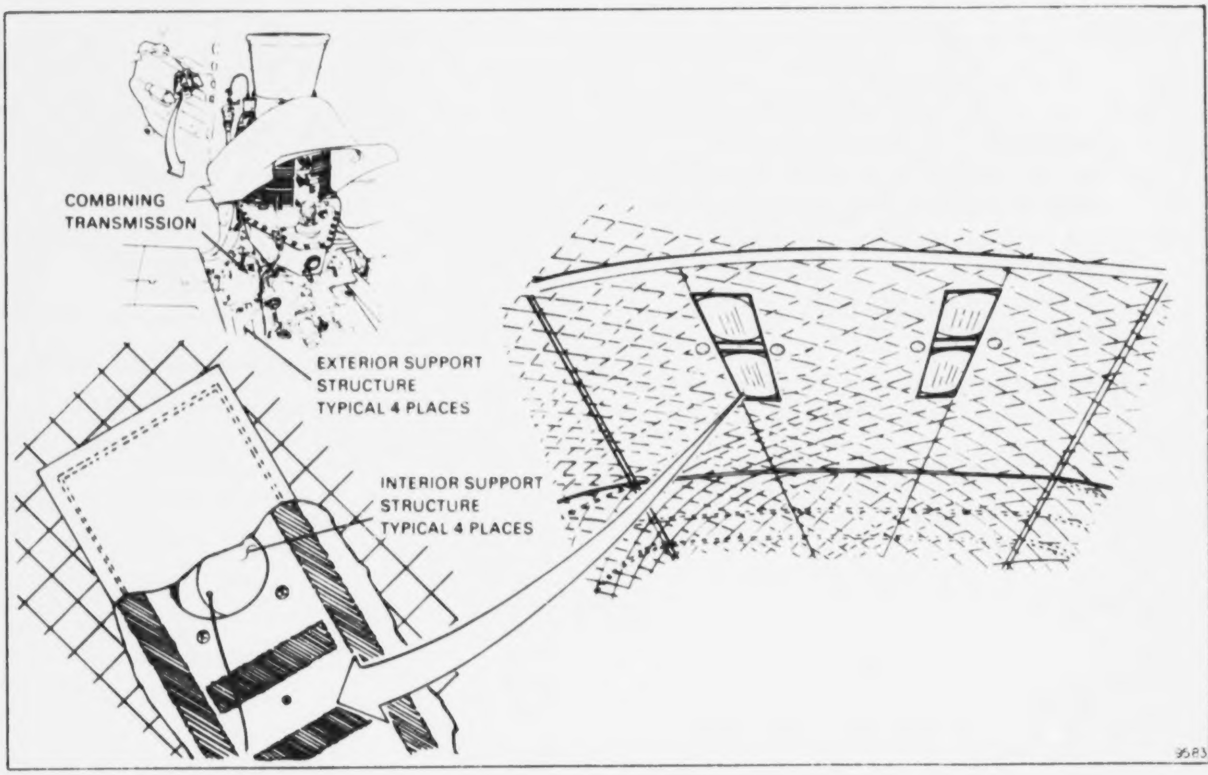
Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Aft Pylon Door Open (Task 2-2)
Aft Pylon Lower Fairing Open (Task 2-2)

General Safety Instructions:

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.


COMBINING TRANSMISSION
EXTERIOR SUPPORT STRUCTURE TYPICAL 4 PLACES
INTERIOR SUPPORT STRUCTURE TYPICAL 4 PLACES
95P3

GO TO NEXT PAGE

2-274.1 INSPECT COMBINING TRANSMISSION SUPPORT FITTINGS AND LONGITUDINAL BEAMS (Continued) 2-274.1

INTERIOR INSPECTION

1. If installed, pull down acoustic blanket flaps (1) at four ACCESS MIX BOX MOUNTING BOLTS locations on cabin ceiling.
2. Remove screws (2) and four access panels (3).
3. If surface of longitudinal beams (4) is obscured by dirt, clean them. Use aliphatic naphtha (E245) and clean cloths (E120).
4. Visually inspect all visible surfaces of support fittings (5) and longitudinal beams (4) for cracks. Use a flashlight and mirror. Cracked beams or fittings shall be replaced before next flight. Confirm cracks by fluorescent penetrant inspection (TM 43-0103).

NOTE

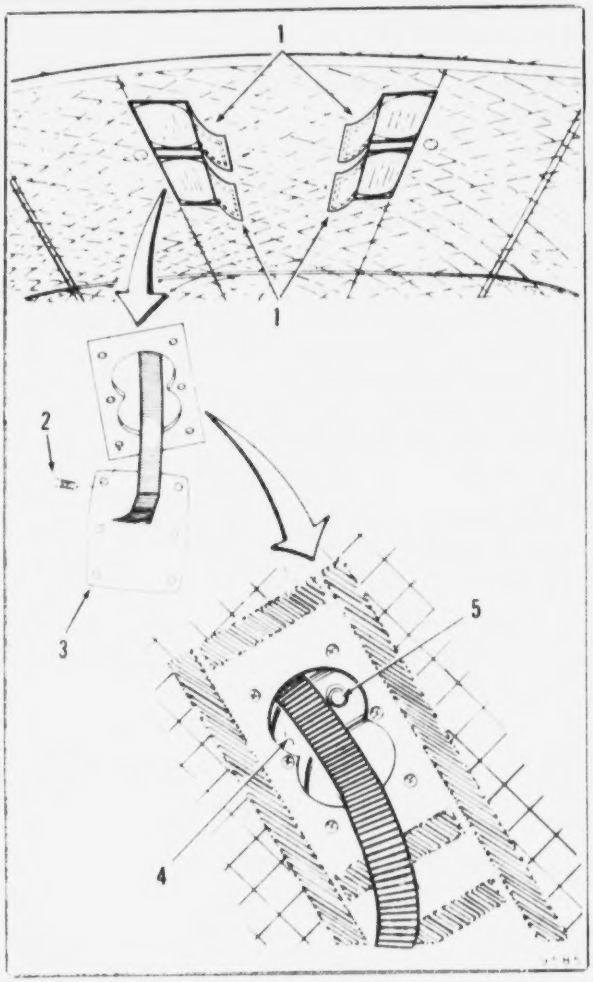
Black fretting material is evidence of a crack.

INSPECT

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, and clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

5. Install four access panels (3) with screws (2). Seal panels with sealant (E336). Wear gloves (E186).
6. Fasten acoustic blanket flaps (1) over four access panels (3).



GO TO NEXT PAGE

2-274.1 INSPECT COMBINING TRANSMISSION SUPPORT FITTINGS AND LONGITUDINAL BEAMS (Continued) 2-274.1

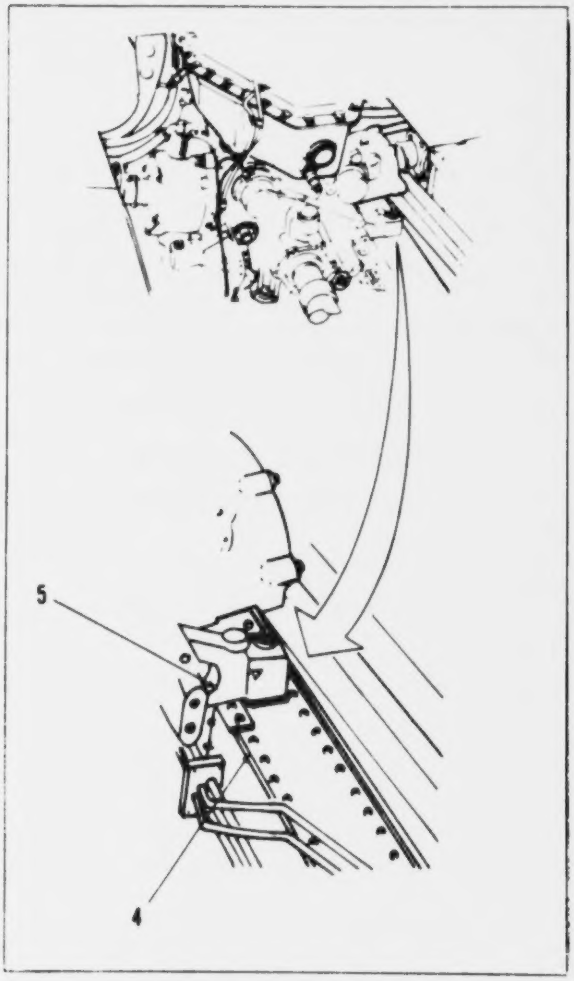
EXTERIOR INSPECTION

7. If surface of longitudinal beams (4) is obscured by dirt, clean them. Use aliphatic naphtha (E245) and clean cloths (E120).
8. Visually inspect all visible surfaces of support fittings (5) and longitudinal beams (4) for cracks. Use a flashlight and mirror. Cracked fittings or beams shall be replaced before next flight.

NOTE

Black fretting material is evidence of a crack. Confirm cracks by dye-penetrant inspection (TM 43-0103).

INSPECT



FOLLOW-ON MAINTENANCE:

Close aft pylon lower fairing (Task 2-2).

Close aft pylon doors (Task 2-2).

GO TO NEXT PAGE

2-275 REPAIR TO TAILCONE 2-275

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

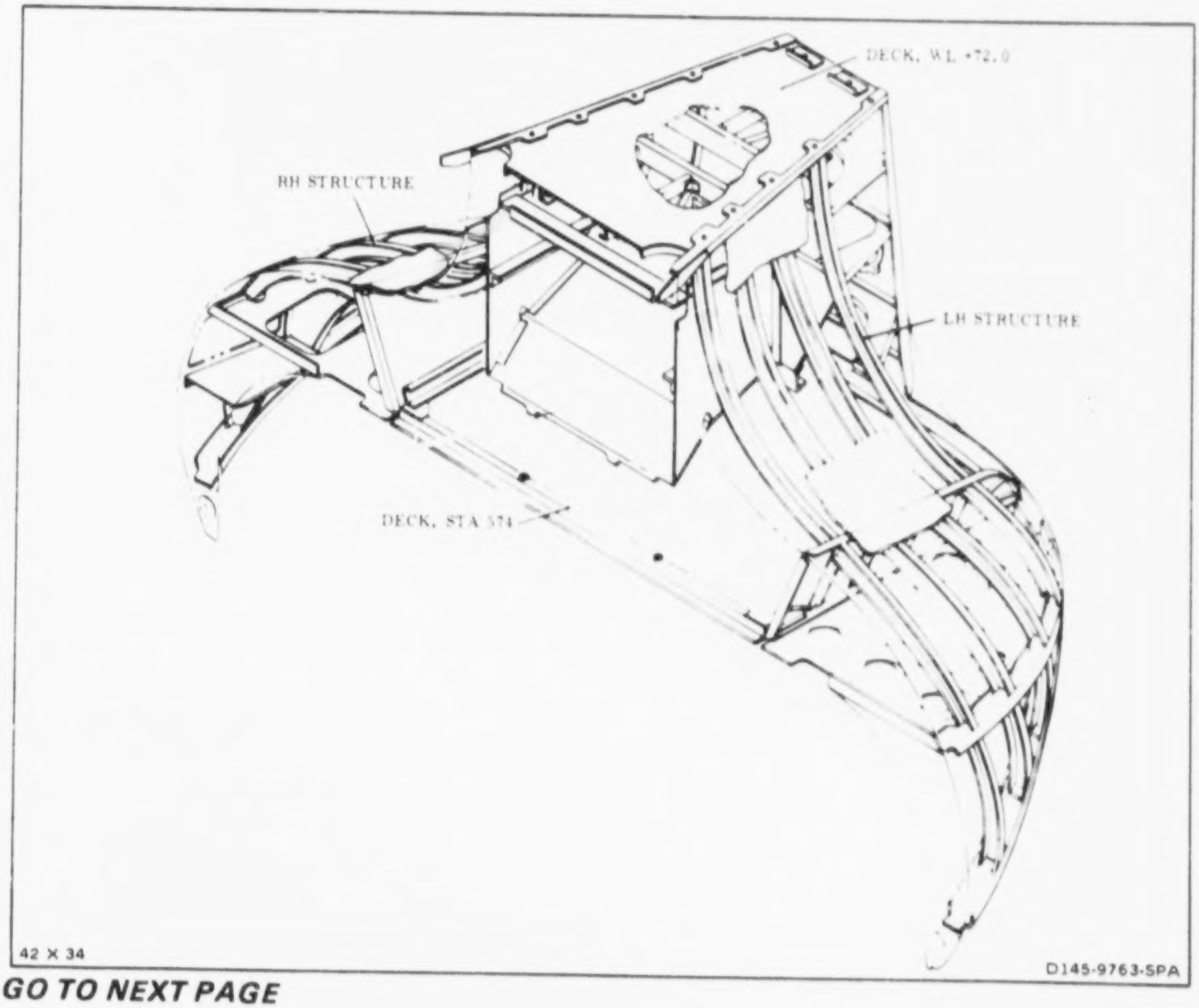
References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Repair tailcone as follows.
   a. If damage to skin is less than 25 percent of panel area, repair by patching.
   b. If damage to formed parts are not on radius, repair by patching.

2. Repair classifications are as follows.
   a. Temporary Repair (Task 2-364).
   b. Minor Skin Damage (Task 2-362).
   c. Minor Web Damage (Task 2-361).



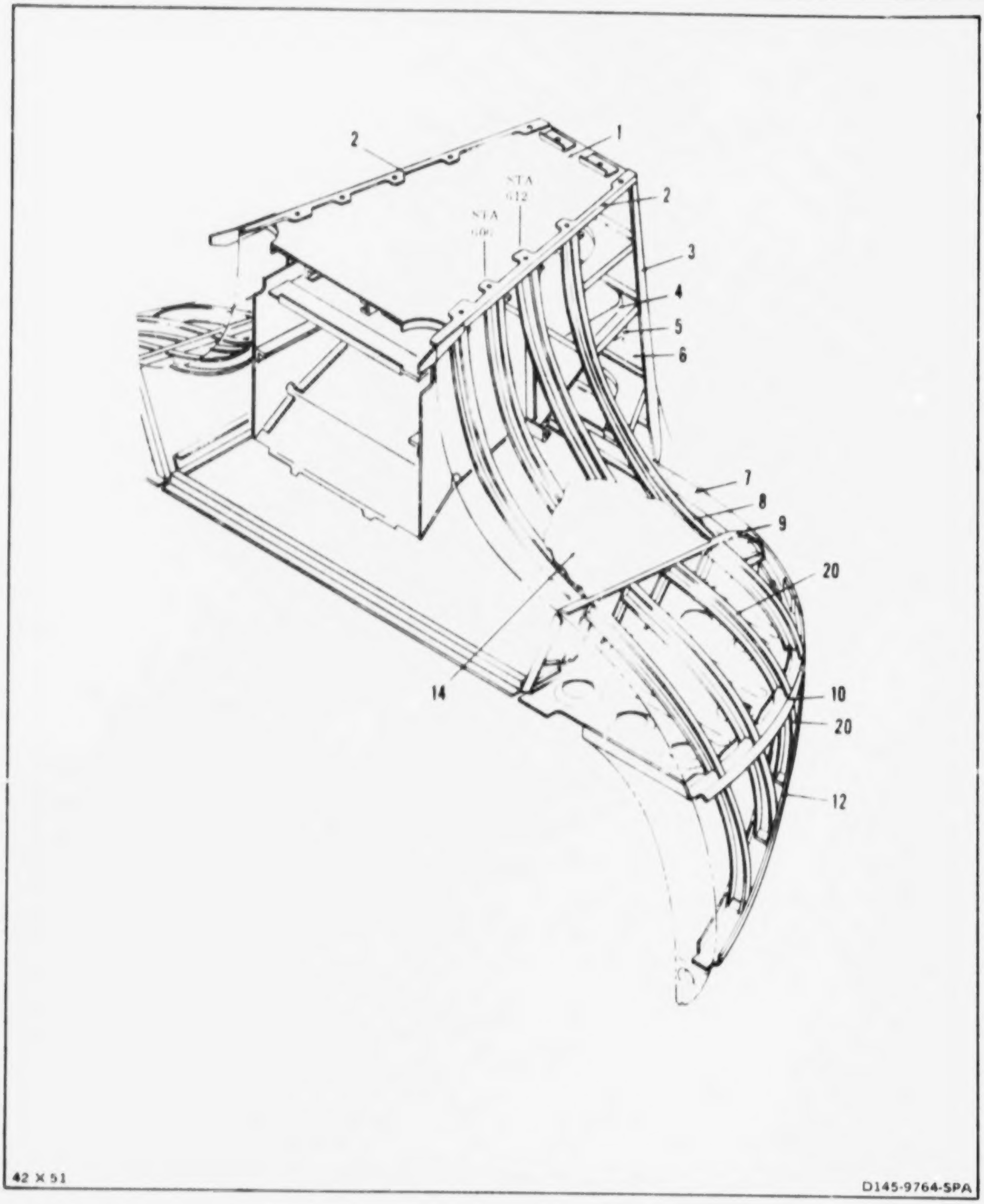
GO TO NEXT PAGE

TAILCONE

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL	
1	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD
2	CAP	0.050	7075-T6 CLAD	0.050	7075-T6 CLAD
3	ANGLE	0.050	2024-T6 CLAD	0.050	7075-T6 CLAD
4	FORMER	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
5	EJECTOR ASSEMBLY	114P0134-1		NOTE B	
6	DOUBLER	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
7	CHANNEL	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
8	FORMER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
9	CAP	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
10	ZEE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
11	CHANNEL	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
12	LONGERON	0.032	2024-T4 CLAD	0.040	2024-T3 CLAD
13	ANGLE	0.040	7075-T6 BARE	0.050	7075-T6 CLAD
14	SKIN	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD
15	GUSSET	0.063	7075-T6 BARE	0.071	7075-T6 BARE
16	WEB	0.025	2024-T3 CLAD	0.032	2024-T3 CLAD
17	SCREEN	0.040	2024-T3 CLAD	NOTE C	
18	LINER	3 PLY NO. 181 GLASS CLOTH		NOTE D	
19	LINER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
20	CHANNEL	0.025	2024-T4 CLAD	0.032	2024-T3 CLAD
21	ANGLE	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD
22	CHANNEL	0.025	7075-T6 BARE	0.032	7075-T6 CLAD
23	CHANNEL	0.050	7075-T6 BARE	0.050	7075-T6 CLAD
24	SUPPORT	0.032	301 CRES MIL-S-5059	NOTE E	
25	PLATE	0.090	301 CRES MIL-S-5059	NOTE E	
26	STIFFENER	VS70504-27075-T6		0.032	7075-T6 CLAD
27	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD
28	WEB	0.020	2024-T4 CLAD	0.025	2024-T4 CLAD
29	WEB	0.012	2024-T3 CLAD	0.016	2024-T3 CLAD
30	WEB	0.016	2024-T3 CLAD	0.020	2024-T3 CLAD
31	STIFFENER	BAC1490-25			7075-T6 CLAD
32	SHIELD	0.012	2024-T3 CLAD	0.016	2024-T3 C
33	CLIP	0.016	2024-T3 CLAD	NOTE E	

NOTES:
A All dimensions are in inches.
B For damage other than minor replace with a new part.
C Repair impracticable. Replace with new screen 145S3504-2.
D Refer to TM 55-1500-204-25/1 for repairs to glass cloth.
E Fabricate new part from same material as original.

GO TO NEXT PAGE


2
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STA 612
STA 606
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42 X 51
D145-9764-SPA

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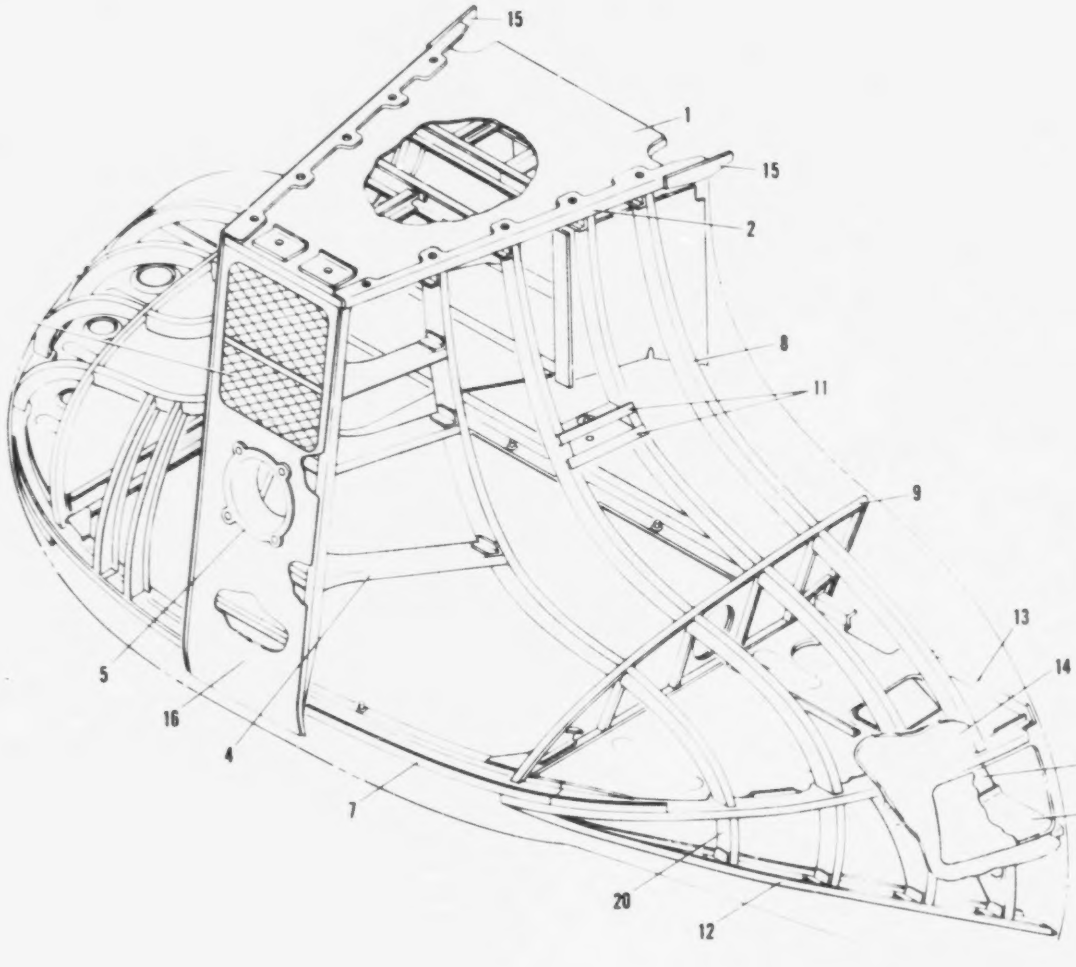
15
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12

42 X 51

D145-9765-SPA

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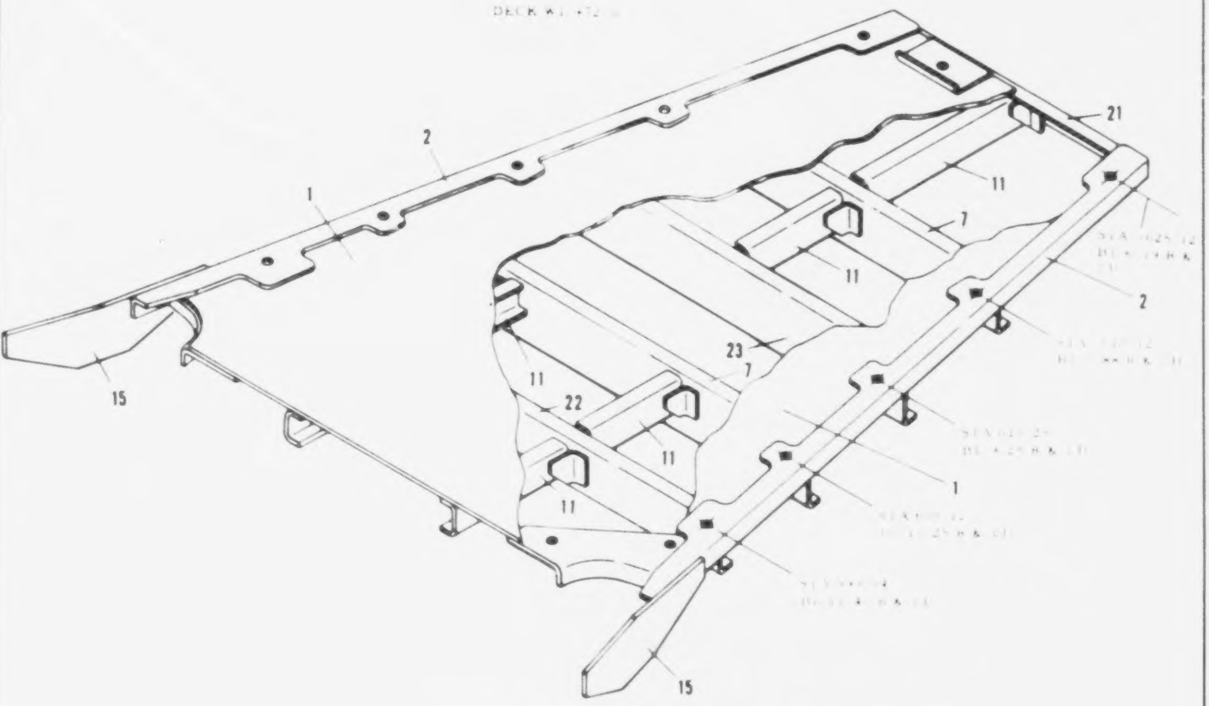
2-275 REPAIR TO TAILCONE (Continued)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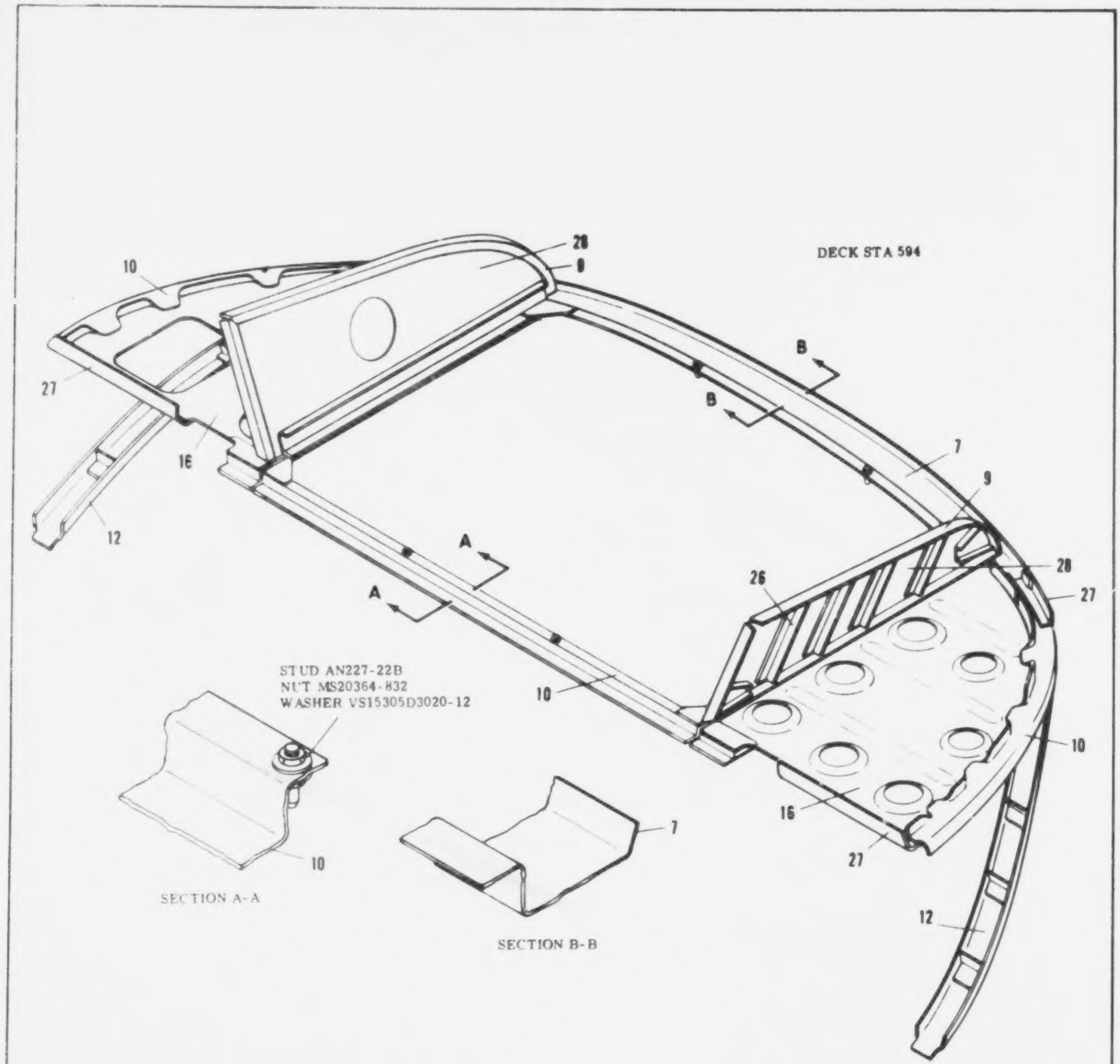
15

42 X 51

D145-9766-SPA

GO TO NEXT PAGE

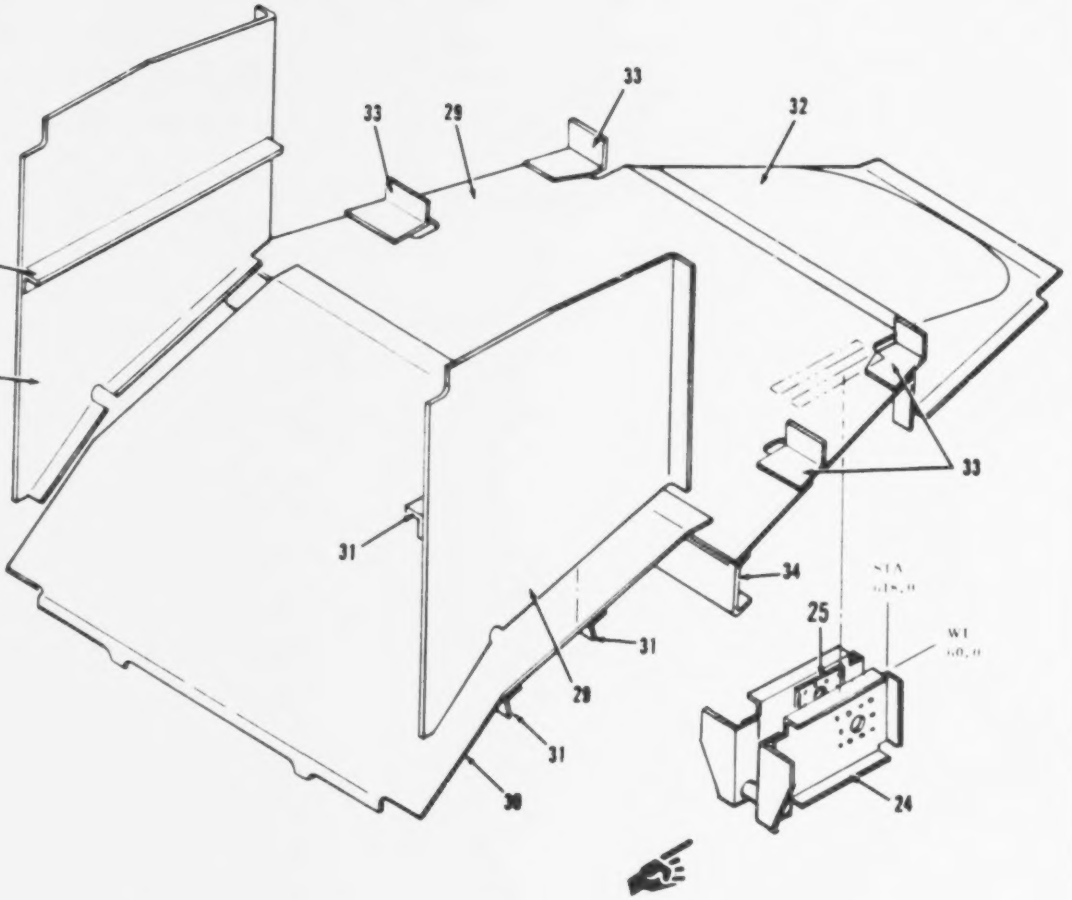
2-275 REPAIR TO TAILCONE (Continued) 2-275



10
28
9
DECK STA 594
27
B
B
16
7
9
12
A
A
28
26
27
STUD AN227-22B
NUT MS20364-832
WASHER VS15305D3020-12
10
10
16
7
10
27
SECTION A-A
SECTION B-B
12
42 X 51
D145-9767-SPA

GO TO NEXT PAGE

2-275 REPAIR TO TAILCONE (Continued)


33
29
33
32
31
29
33
31
34
STA
618.0
25
WL
60.0
31
29
31
30
24

4595

FOLLOW-ON MAINTENANCE:

As Required

END OF TASK

2-276 REPAIR TO TAILCONE (AVIM) 2-276

INITIAL SETUP

Applicable Configurations:
All

Tools
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Refercnces:
TM 55-1500-240-25/1
Task 2-275

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. If damage is more than 25 percent of panel area or structural members are damaged repair by insertion. Refer to Task 2-275 for structural details.
2. If damage to formed part is on radius repair by insertion. Refer to Task 2-275 for structural details.

FOLLOW-ON MAINTENANCE:
None

END OF TASK

2-277 REPAIR TO APU UPPER MOUNT SUPPORTS (AVIM) 2-277

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

None

Parts:

Bushings
Rivets
Plates

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

TM 55-1500-204-25/1
TM 55-1520-240-23P

Equipment Condition:

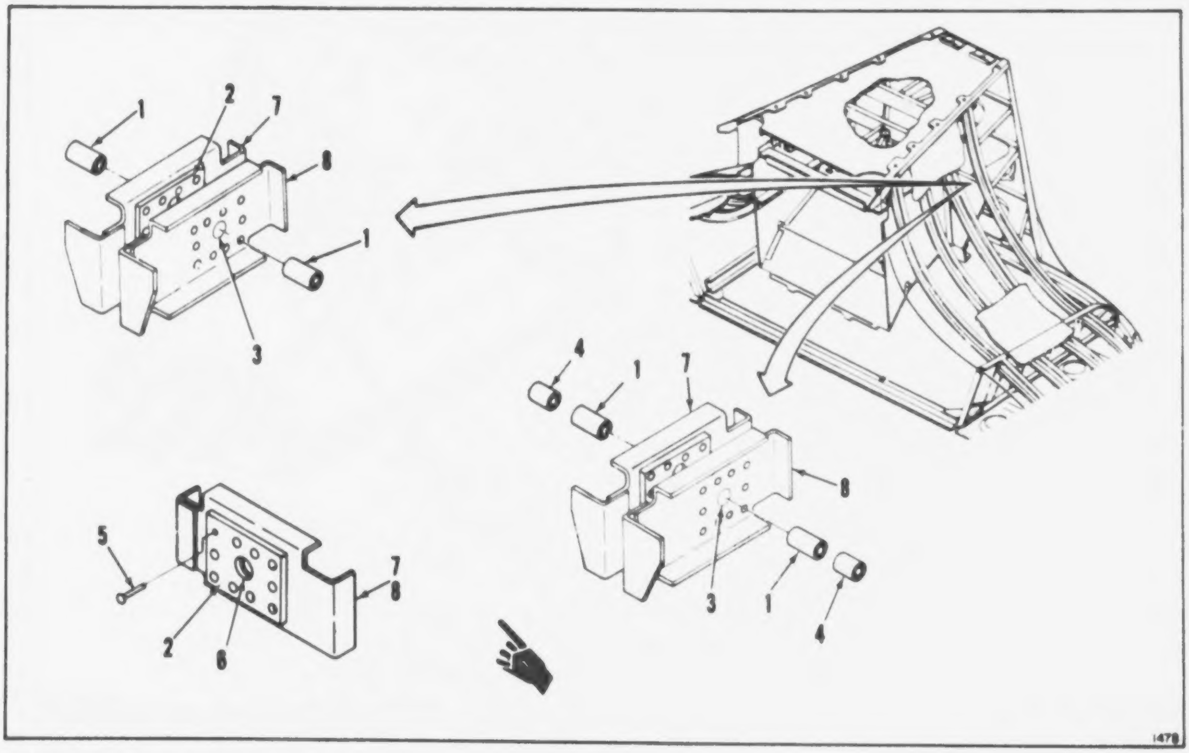
APU Removed (Task 15-3)

REPAIR USING OVERSIZE BUSHINGS

1. **Remove two bushings** (1) from two plates (2).
2. **Line ream holes (3)** through plates (2) to 0.3783 to 0.3798 inches.
3. **Install oversize bushings (4).**

REPLACE MOUNT PLATES

4. **Drill and punch out ten rivets (5)** from each of two plates (2). Remove plates.
5. **Drill rivet holes** in replacement plates (2). Use drill No. 30.
6. **Drill a 1/4 inch hole (6)** in center of each plate (2).
7. **Position plates (2)** on inner side of supports (7 and 8). **Install ten rivets (5) in each plate.**
8. **Line ream hole (6)** in two plates (2) 0.439 to 0.440 inch.
9. **Install two bushings (1)** in plates (2).



FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-278 REPAIR APU LATERAL SUPPORTS (AVIM) 2-278

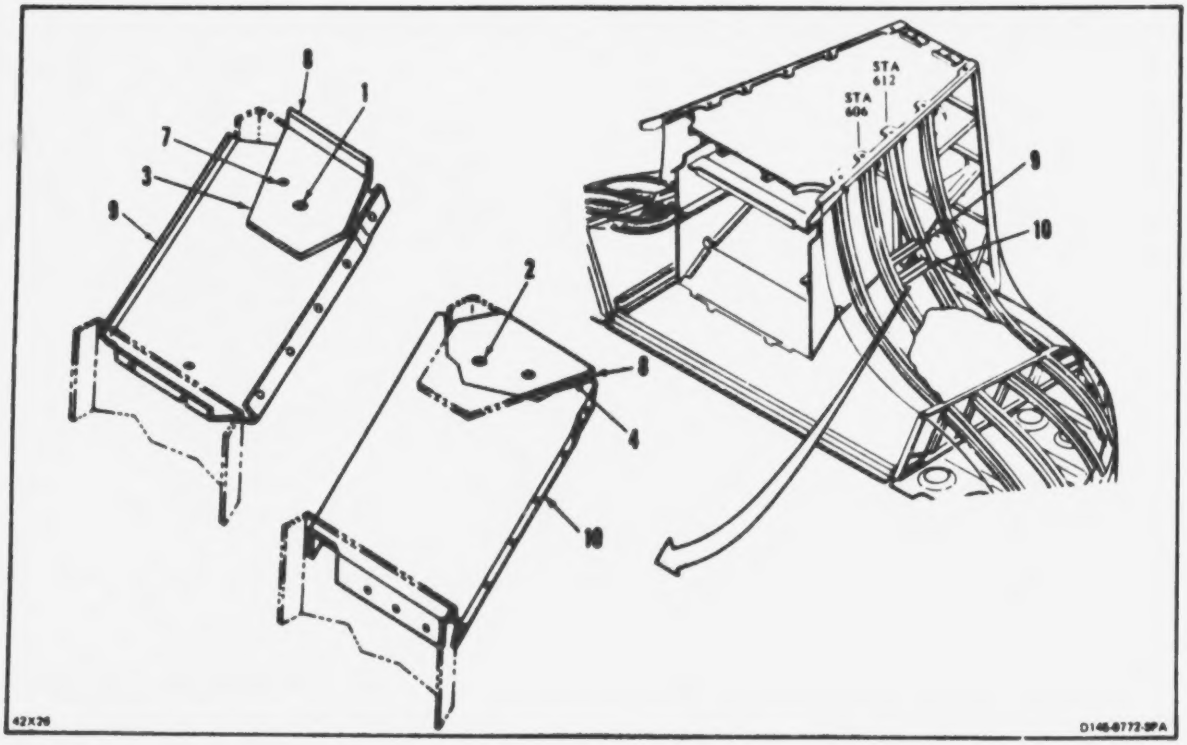
Parts:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1520-240-23P
TM 55-1500-204-25/1

Equipment Condition:
APU Removed (Task 15-3)

1. If two holes (1 and 2) in clips (3 and 4) are more than 0.264 inches diameter **replace clips** as follows:
   - a. **Drill out 12 rivets (7)** from clips. Remove clips.
   - b. **Make new clips** from 0.063 inch thick alclad sheet 2024T3 or T4. Bend radius is 0.19 inch.
   - c. **Drill rivet holes** in clips, using pattern from removed clips. Use No. 30 drill around hole surface and No. 21 drill in flanges (8).
   - c. **Drill rivet holes** in clips, using pattern from removed clips. Use No. 30 drill around hole surface and No. 21 drill in flanges (8).
   - d. **Drill 0.290 inch diameter holes in clips.**
   - e. **Position clips** on bottom and upper surface of supports (9 and 10). Align clips.
   - f. **Install 12 rivets (7)** in clips (3 and 4) and supports (9 and 10).



INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

SECTION IV

PYLON

2-279 REMOVE PYLON LEADING EDGE HINGED FAIRING 2-279

INITIAL SETUP

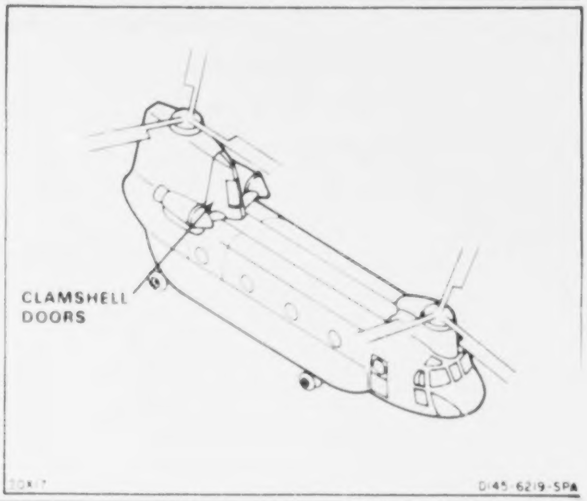
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)

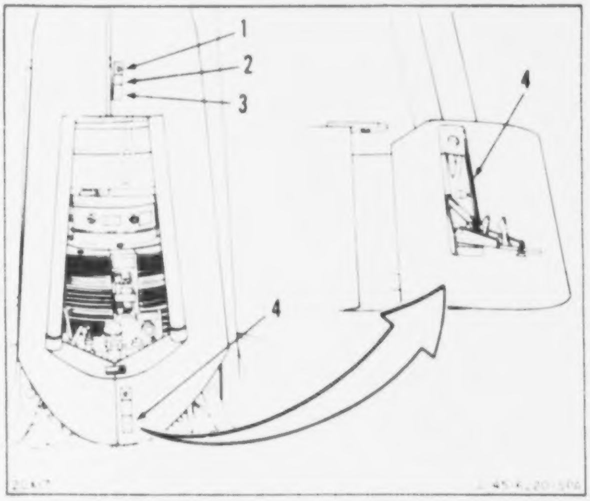
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


CLAMSHELL DOORS
20X17
D145-6219-SPA

NOTE

Procedure is same to remove right or left clamshell door. Removal of right door is shown here.

1. Loosen captive screws (1) on two latch handles (2).
2. Press latch handles (2) and release latches (3 and 4).
3. Pull latch handles (2) and open latches (3 and 4).


1
2
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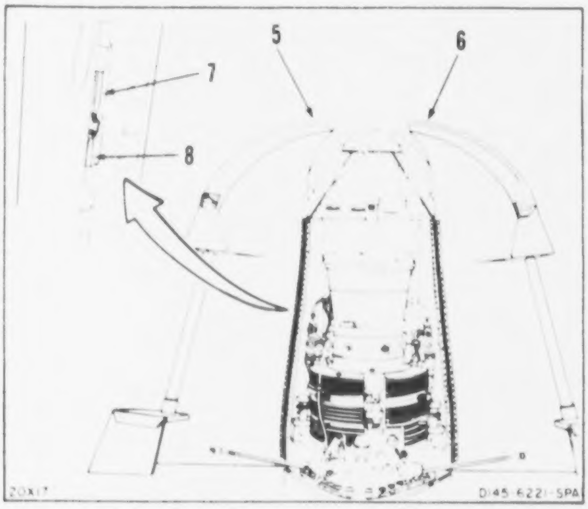
20X17
D145-6220-SPA

4. **Open clamshell doors (5 and 6).**
5. Remove lockwire from two hinge rods (7 and 8).


5
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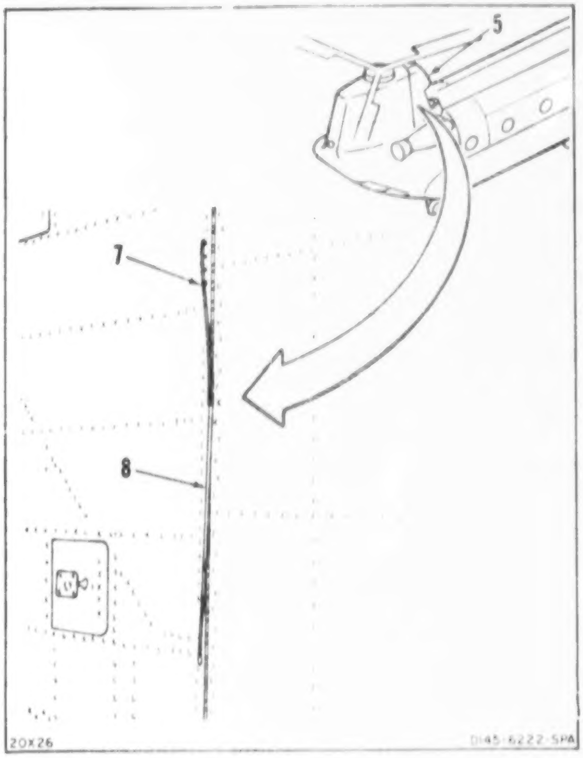
20X17
D145-6221-SPA

GO TO NEXT PAGE

2-279 REMOVE PYLON LEADING EDGE HINGED FAIRING (Continued) 2-279

6. Have helper close and support door (5).
7. **Remove bottom hinge rod (8).**
8. **Remove top hinge rod (7).**
9. **Remove door (5).**


5
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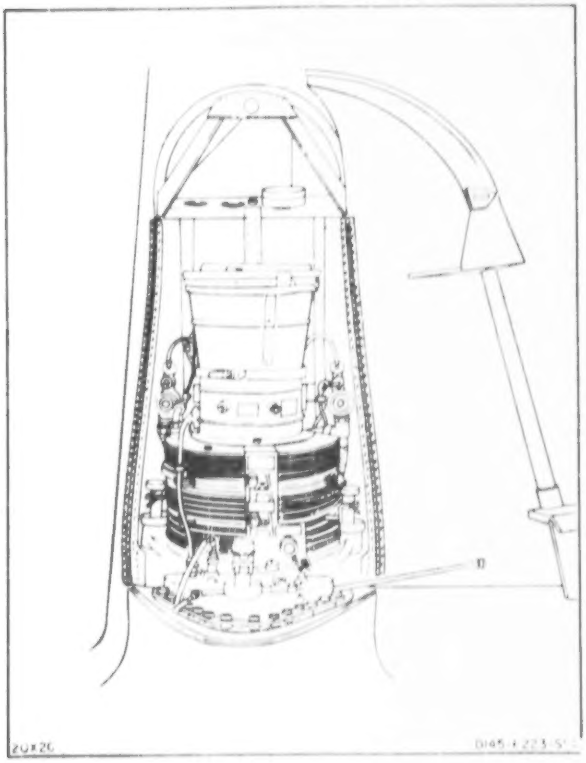
20x26
D145-6222-5PA

FOLLOW-ON MAINTENANCE:

None


8
20x26
D145-6223-5

END OF TASK

2-280 REPAIR LEADING EDGE HINGED FAIRING 2-280

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required
Screen (E266)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-13

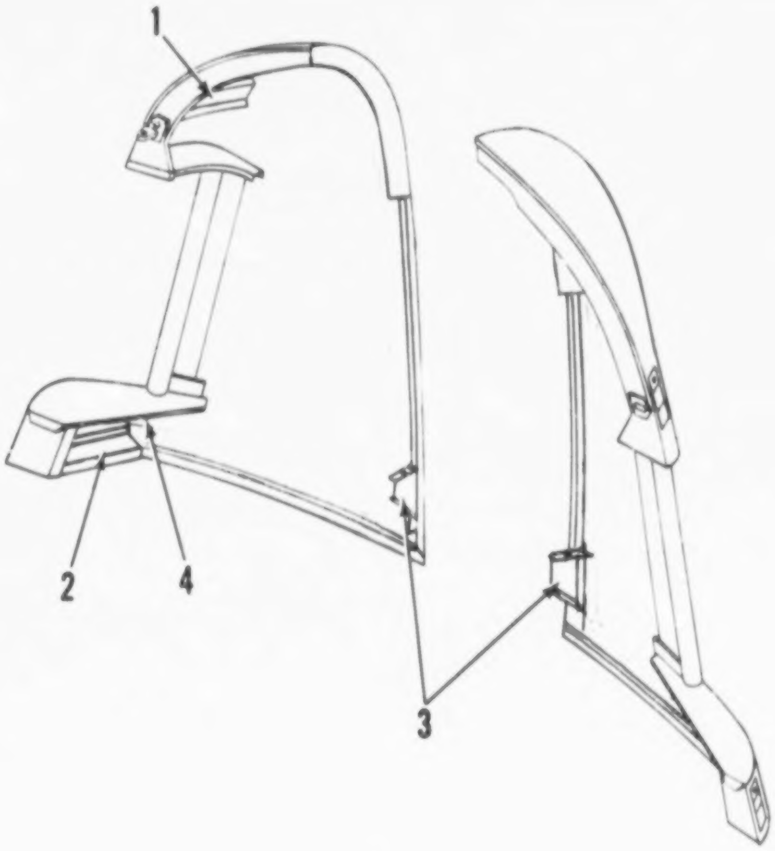
Equipment Condition:
As Required

---

1. If damage to skin is less than 25 percent of cross section skin panel, repair by patching (Task 2-13).
2. If damage to formed parts does not affect radius, repair by patching (Task 2-13).

GO TO NEXT PAGE

2-280 REPAIR LEADING EDGE HINGED FAIRING (Continued) 2-280



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	ZEE	[illegible] 7075-0 CLAD T6	0.080 7075-0 CLAD T6
2	ZEE	0.[illegible] 2024-T3 CLAD	0.050 2024-T3 CLAD
3	SUPPORT	0.040 2024-T3 CLAD	0.050 2024 [illegible]
4	ANGLE	0.080 7075-0 CLAD HT TRT6	0.080 7075-[illegible] CLAD T6

42 X 51

D145-10300-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-281 INSTALL PYLON LEADING EDGE HINGED FAIRING 2-281

INITIAL SETUP

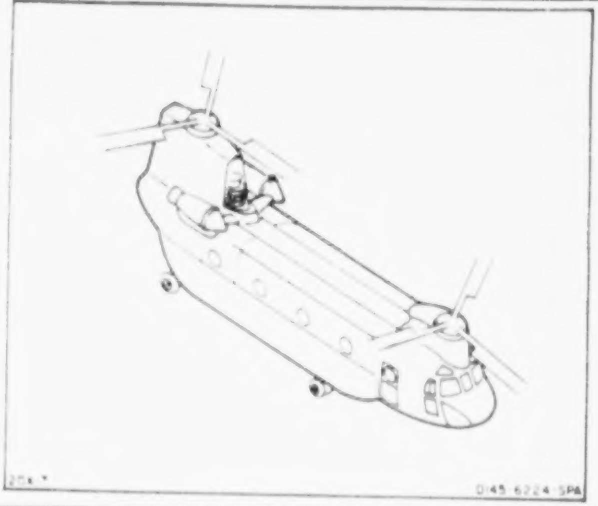
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Lockwire (E229)

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

References:
TM 55-1520-240-23P



NOTE

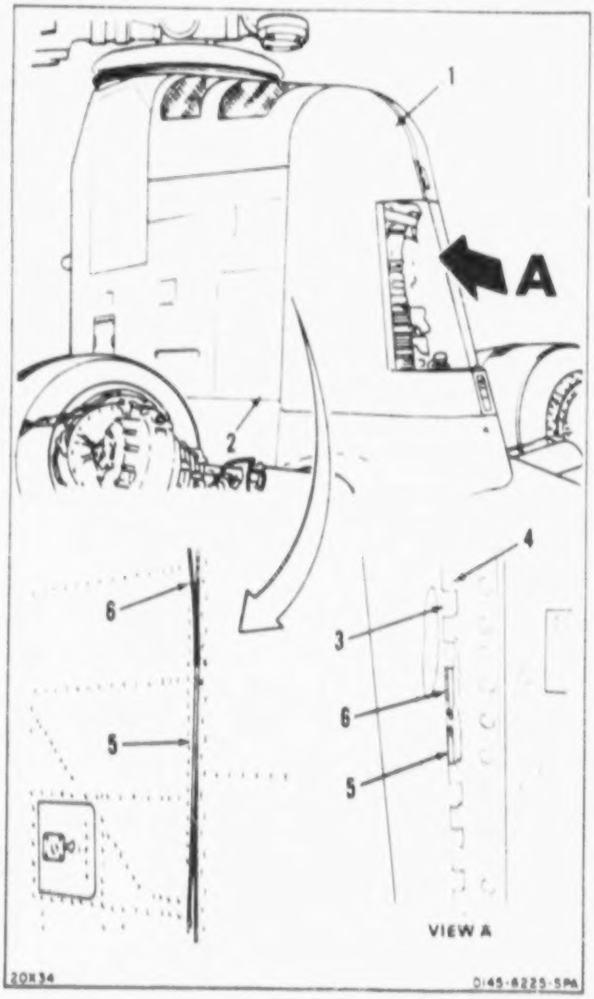
Procedure is same to install right or left clamshell door. Installation of right door is shown here.

1. **Position door (1)** on pylon structure (2).
2. Align hinge leaf (3) on door (1) and hinge leaf (4) on structure (2).
3. Have helper support door (1).

NOTE

Top hinge rod is longer than bottom hinge rod.

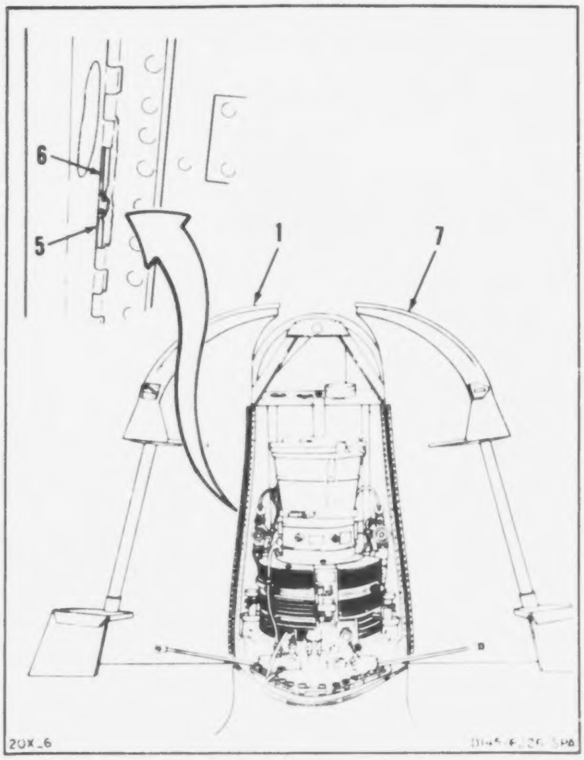
4. **Install bottom hinge rod (5).**
5. **Install top hinge rod (6).**



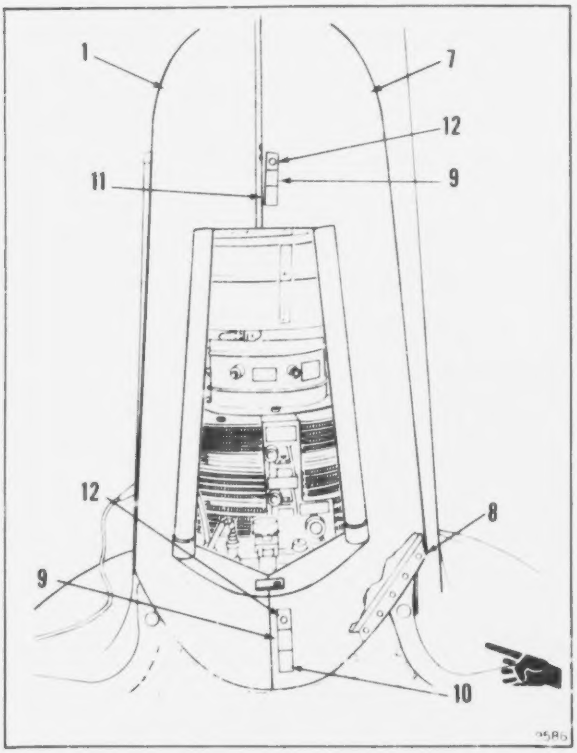
GO TO NEXT PAGE

2-281 INSTALL PYLON LEADING EDGE HINGED FAIRING (Continued)

6. Open doors (1 and 7).
7. Install lockwire (E229) in rods (5 and 6).



8. **Close doors (1 and 7).** Check closed doors for fit.
9. **If needed, trim the 24 bumpers (8)** to obtain a good fit of doors (1) and (7). Minimum thickness of bumpers after trimming shall be 0.06 inch.
10. Push two latch handles (9) in and lock latches (10 and 11).
11. Tighten two captive screws (12) on latches (10 and 11).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-282 REMOVE PYLON FAIRING LATCH 2-282

INITIAL SETUP

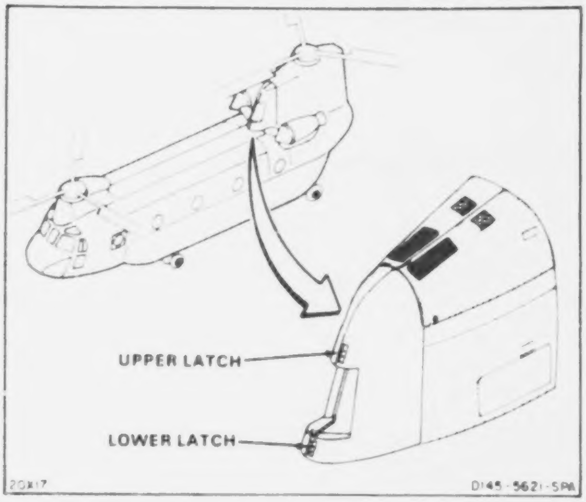
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

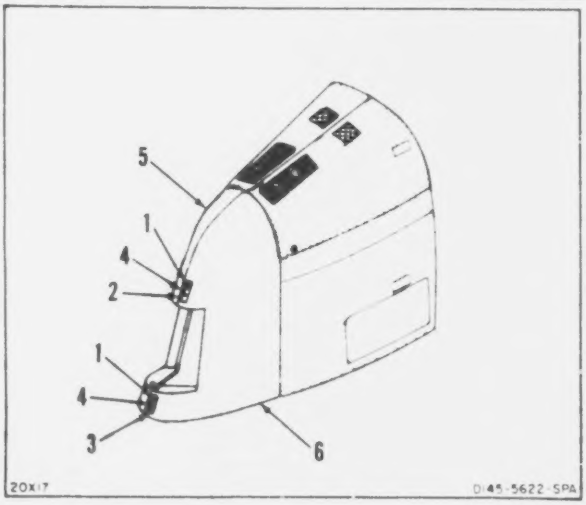
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


UPPER LATCH
LOWER LATCH
20X17
D145-5621-SPA

1. Loosen two captive screws (1) on upper latch (2), and lower latch (3).
2. Press two latch handles (4), and release latches (2 and 3).
3. **Open pylon fairing (clamshell) doors (5 and 6).**


5
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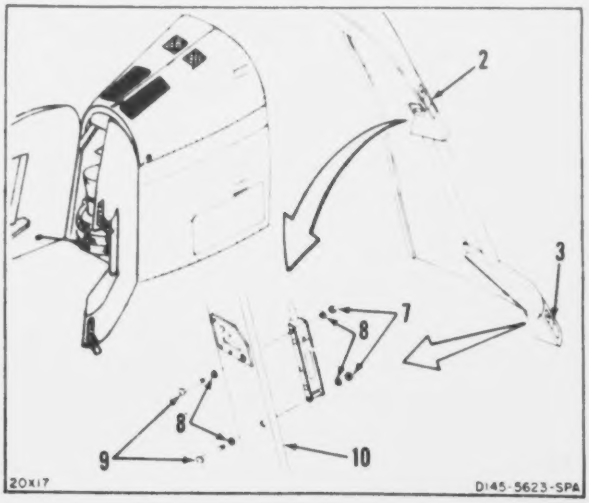
6
20X17
D145-5622-SPA

4. Close latches (2 and 3).
5. **Remove** two nuts (7), four washers (8), and **two screws (9)** from structure (10) and lower latch (3). **Remove lower latch.**
6. **Remove two nuts (7),** four washers (8), and **two screws (9)** from structure (10) and upper latch (2). **Remove upper latch.**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20X17
D145-5623-SPA

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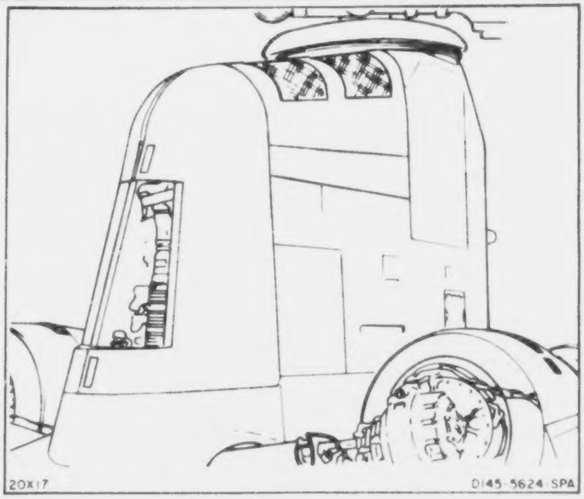
2-282 REMOVE PYLON FAIRING LATCH (Continued) 2-282

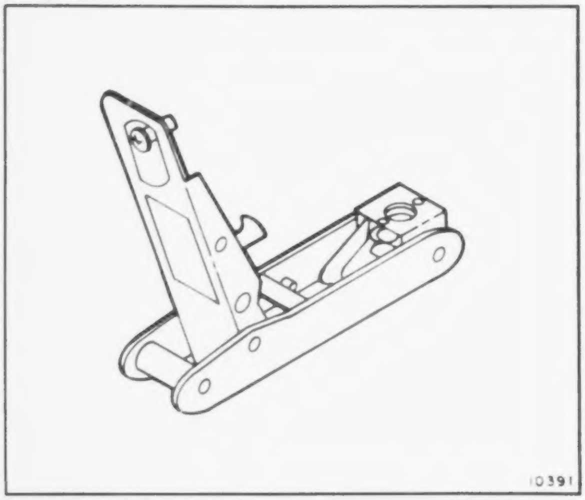

20X17
D145-5624-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-282.1 DISASSEMBLE PYLON FAIRING LATCH (AVIM) 2-282.1



INITIAL SETUP

Applicable Configurations:
All

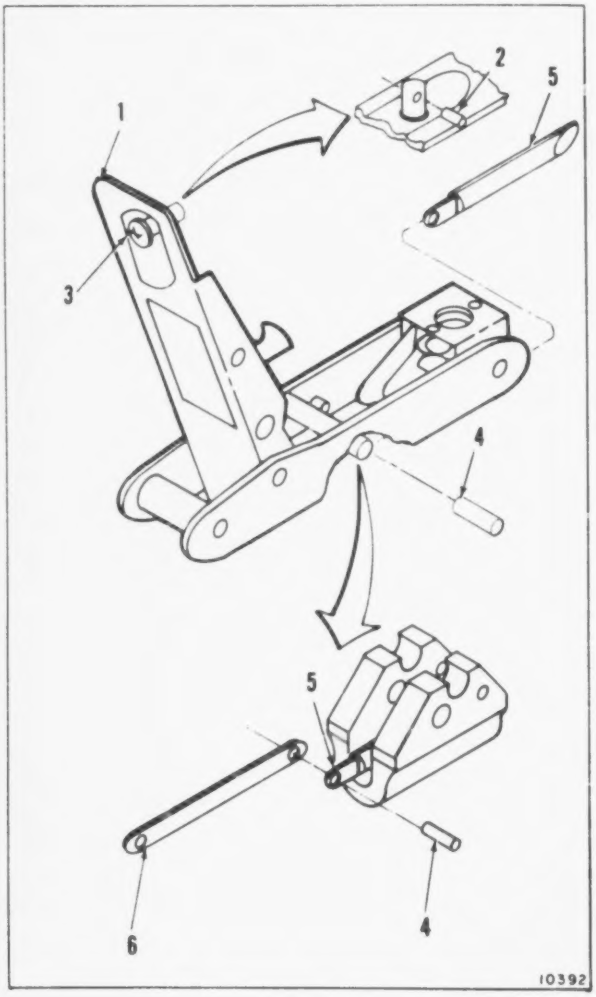
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-23P

Equipment Condition:
Off Helicopter Task



1. **Pull** latch **handle (1) to OPEN** position.
2. **Remove** cross **pin (2)** from stud (3).
3. **Remove stud (3)** from latch handle (1).
4. **Remove roller pin (4)** from pin (5) and link (6).
5. **Remove pin (5).**
6. **Inspect pin (5)** for wear. If the remaining diameter of a pin is 0.208 inch or less, replace the pin.

FOLLOW-ON MAINTENANCE:

Assemble pylon fairing latch (Task 2-282.2).

END OF TASK

2-282.2 ASSEMBLE PYLON FAIRING LATCH (AVIM 2-282.2

INITIAL SETUP

Applicable Configurations:
All

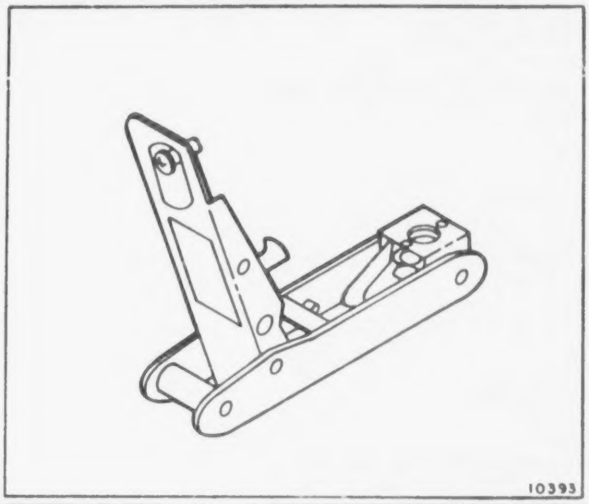
Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

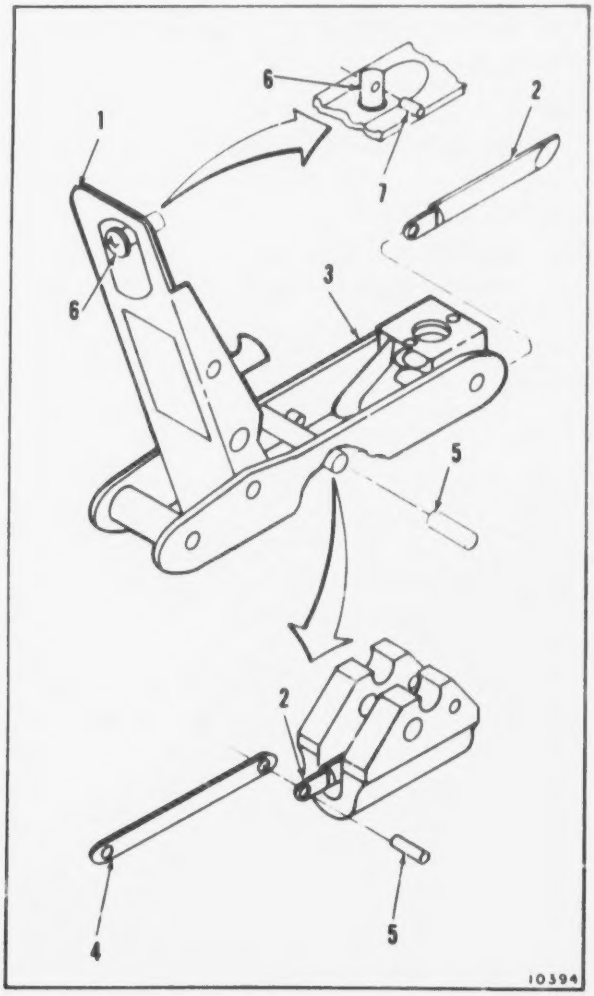
Personnel Required:
Medium Helicopter Repairer

References:
TM 55-1520-240-23P

Equipment Condition:
Off Helicopter Task



1. **Set handle (1) to OPEN position.**
2. **Position pin (2) in latch (3).**
3. **Align holes in pin (2) and link (4).**
4. **Install pin (5)** in link (4) and pin (2).
5. **Install stud (6)** in handle (1).
6. **Install cross pin (7)** in stud (6).



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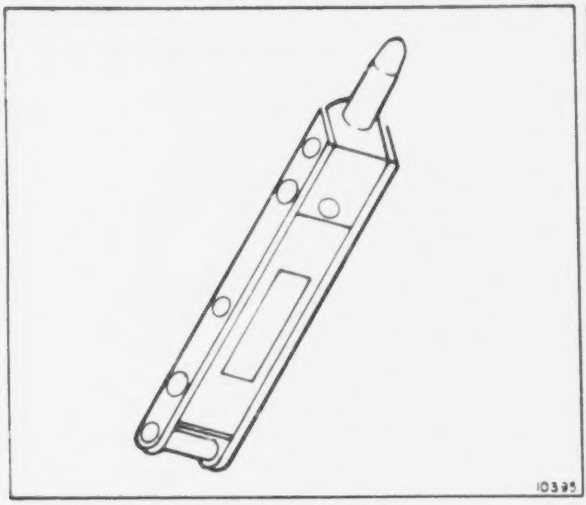
2-282.2 ASSEMBLE PYLON FAIRING LATCH (AVIM (Continued) 2-282.2

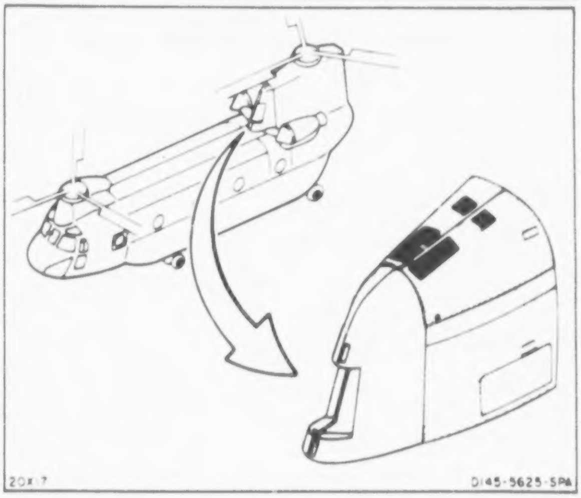
FOLLOW-ON MAINTENANCE:

Install pylon fairing latch (Task 2-283).



END OF TASK

2-283 INSTALL PYLON FAIRING LATCH 2-283


20X17
D145-5625-SPA

INITIAL SETUP

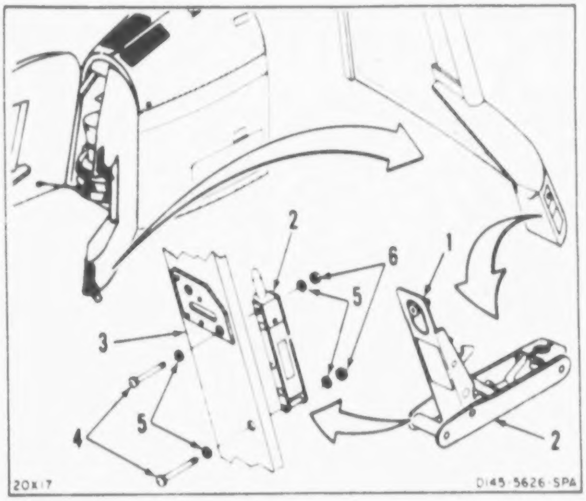
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer
67U30 Inspector

References:
TM 55-1520-240-23P


2
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4
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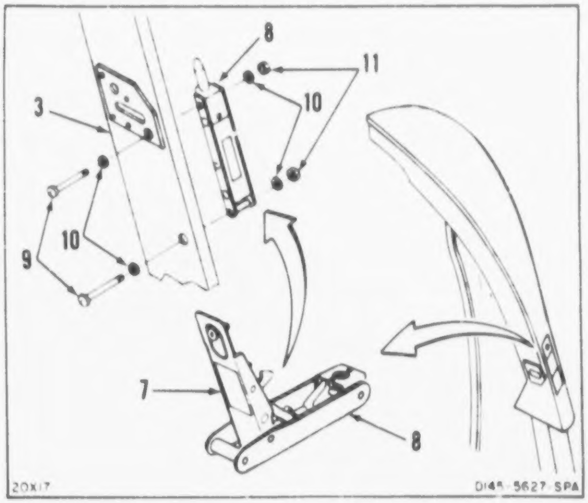
2
20X17
D145-5626-SPA

1. Close handle (1) and **position lower latch (2)** on structure (3).
2. **Install two screws (4)** and washers (5) through holes in structure (3) and latch (2).
3. Install two washers (5) and two nuts (6). Tighten screws (4).


8
11
3
10
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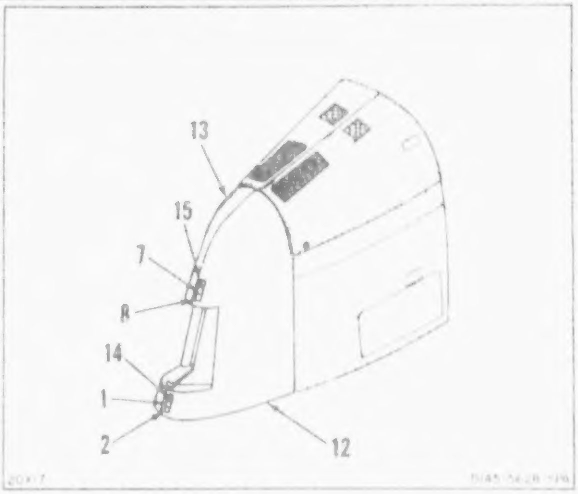
9
7
8
20X17
D145-5627-SPA

4. Close handle (7) and **position upper latch (8)** on structure (3).
5. **Install two screws (9)** and washers (10) in structure (3) and latch (8). Install two washers (10) and nuts (11) on latch (8).

GO TO NEXT PAGE

2-283 INSTALL PYLON FAIRING LATCH (Continued) 2-283



6. Press latch handles (1 and 7) and open latches (2 and 8).
7. **Close pylon fairing (clamshell) doors (12 and 13).**
8. Close handles (1 and 7) on latches (2 and 8).
9. Tighten two captive screws (13 and 14).

INSPECT

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-284 REMOVE PYLON LOWER HINGED FAIRING 2-284

INITIAL SETUP

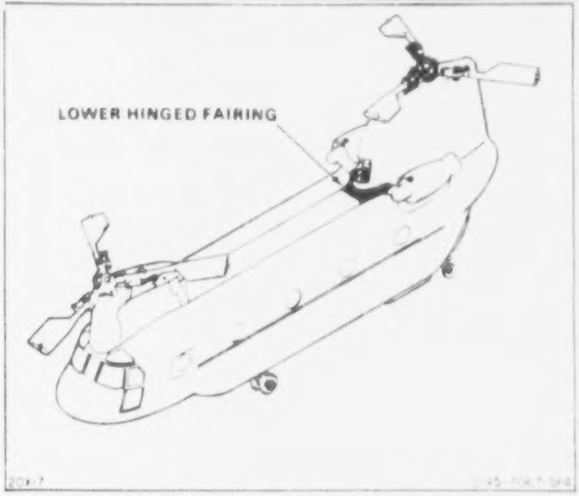
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

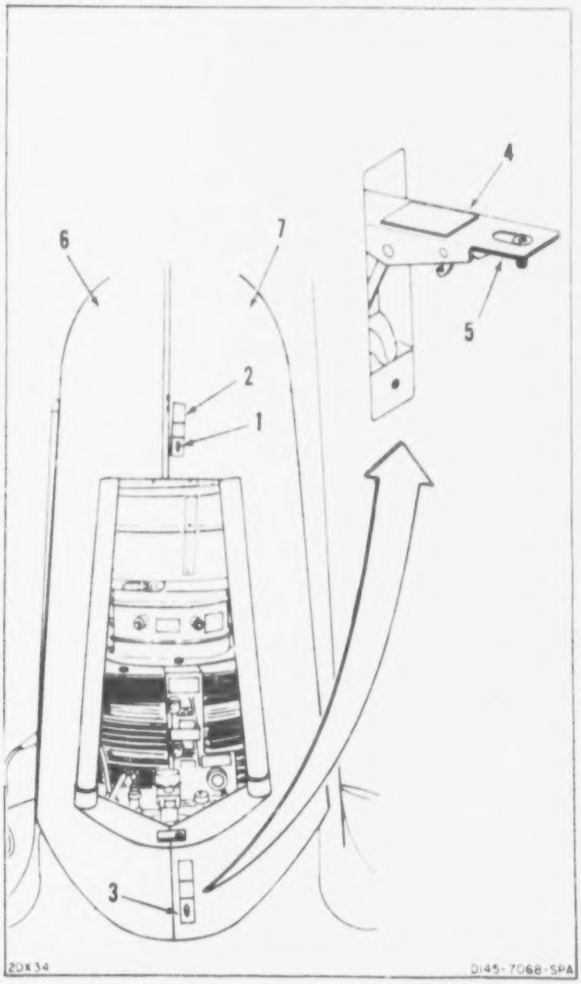
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


LOWER HINGED FAIRING
20X17
D145-7067-SPA

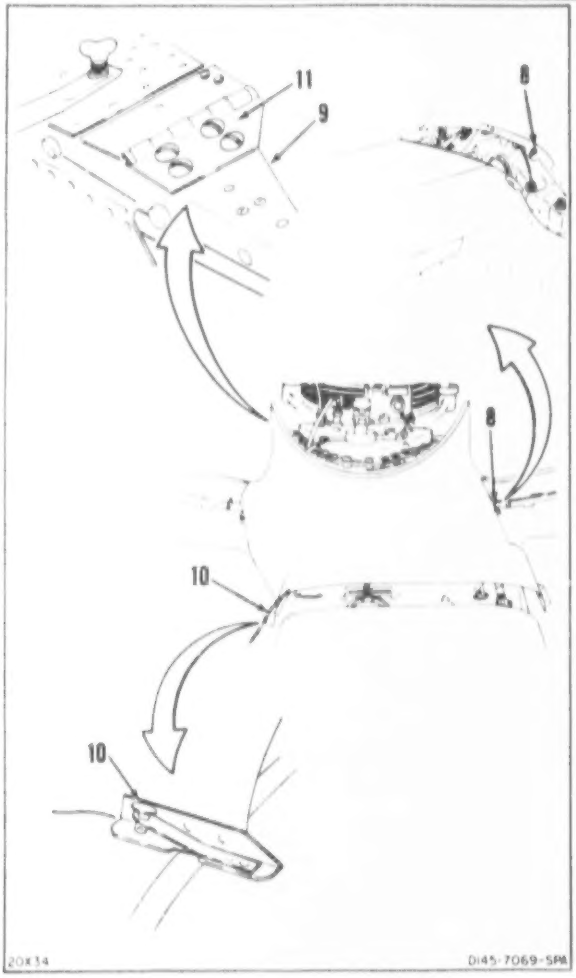
1. Loosen captive screws (1) on two latches (2 and 3).
2. Press release springs (4) on latches (2 and 3).
3. Pull handles (5) on latches (2 and 3).
4. **Open fairings (6 and 7).**


4
6
7
5
2
1
3
20X34
D145-7068-SPA

GO TO NEXT PAGE

2-284 REMOVE PYLON LOWER HINGED FAIRING (Continued) 2-284

5. **Loosen two screws (8),** one on right side and one on left side of fairing (9)
6. **Loosen two fasteners (10),** one on rig side and one on left side of fairing (9)
7. Loosen four captive screws (11)
8. **Remove fairing (9).**


11
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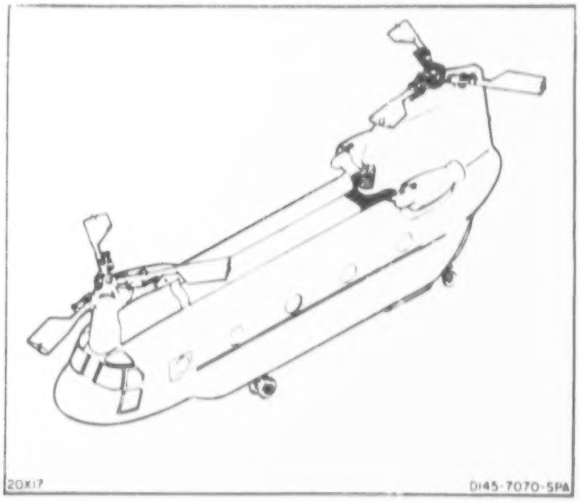
20X34
D145-7069-SPA


20X17
D145-7070-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-285 INSTALL PYLON LOWER HINGED FAIRING 2-285

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Drill Size K File, Rotary

Materials:

Zinc Chromate Primer (E291)

Gloves (E186)

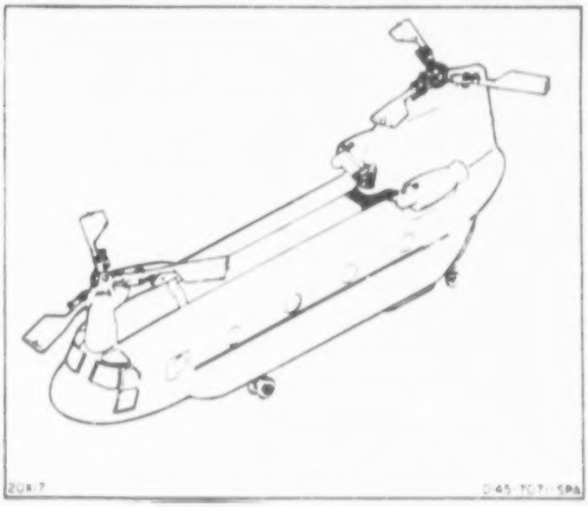
Personnel Required:

Medium Helicopter Repairer

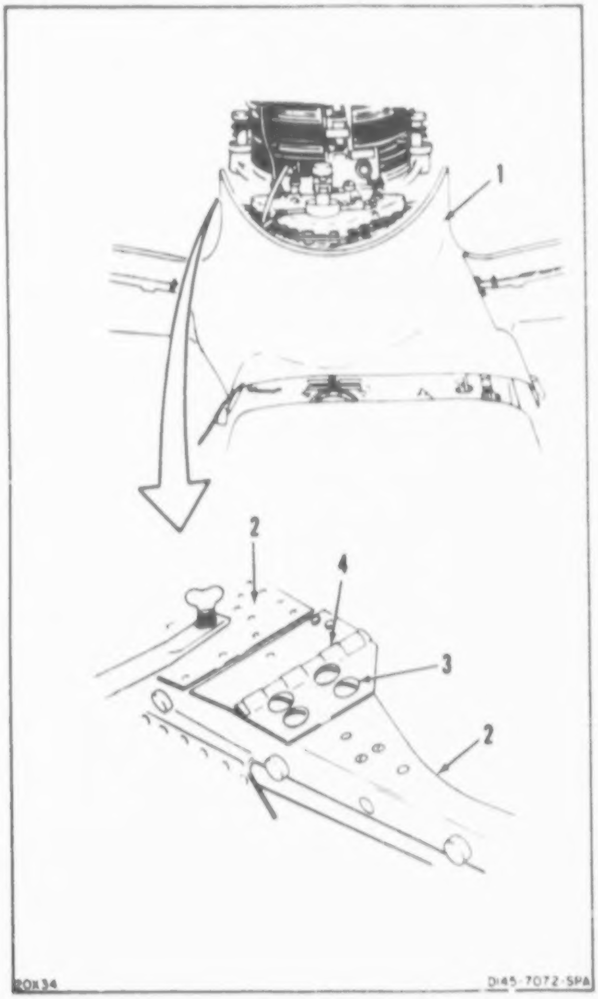
Inspector

References:

TM 55-1520-240-23P



1. **Position lower hinged fairing (1)** on pylon structure (2).
2. Align captive screws (3) on structure (2) with receptacles (4) on fairing (1).
3. Tighten screws (3).



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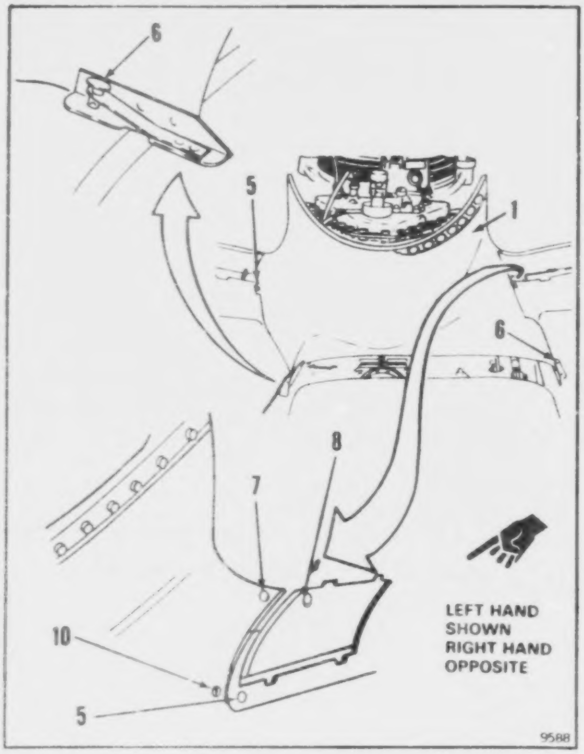
2-285 INSTALL PYLON LOWER HINGED FAIRING (Continued) 2-285

4. **Tighten two fasteners (5)** on right and left sides of fairing (1).
5. **Tighten two fasteners (6)** on right and left sides of fairing (1).
6. **If a new lower hinged fairing (1)** is being installed, have helper position fairing.
7. **Mark stud hole (7)** and fastener hole (10) on both sides of fairing (1).
8. **With rotary file enlarge stud hole (7)** to fit stud (8). Deburr hole.
9. **Drill hole for fastener (10)** deburr hole. Use **drill size K.**

INSPECT



WARNING

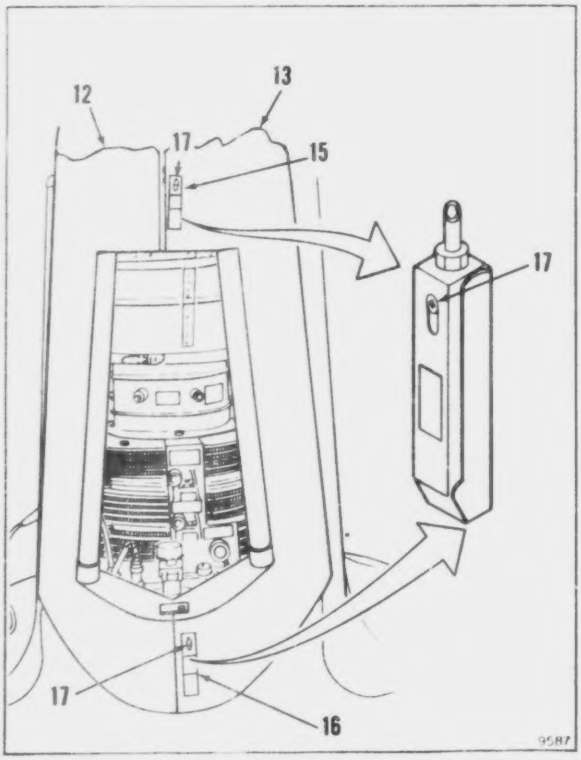
Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

10. **Apply primer (E291)** to drilled hole (10). Wear gloves (E186).
11. Install fastener in drilled hole (10).

12. Close two clamshell doors (12 and 13).
13. Push in and lock latches (15 and 16).
14. Tighten captive screw (17) on latches (15 and 16).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-286 REMOVE TRAILING EDGE FAIRING 2-286

INITIAL SETUP

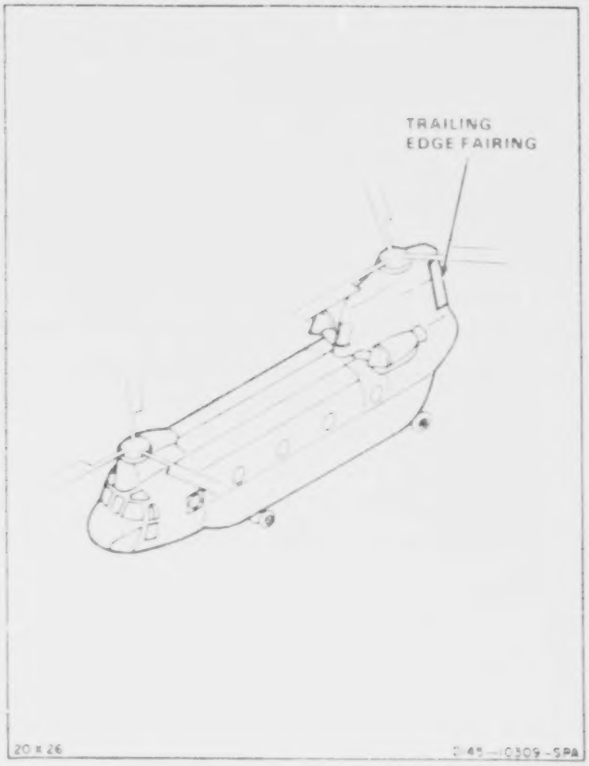
Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Hoist Minimum Capacity 100 Pounds
Workstand
Rope
Guideline

Materials:
None

Personnel Required:
Medium Helicopter Repairer (2)
Aircraft Structural Repairer

Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Tail Position Light Removed(Task 9-63)



1. **Remove 52 rivets (1)** from trailing edge fairing (2) of aft pylon (3).

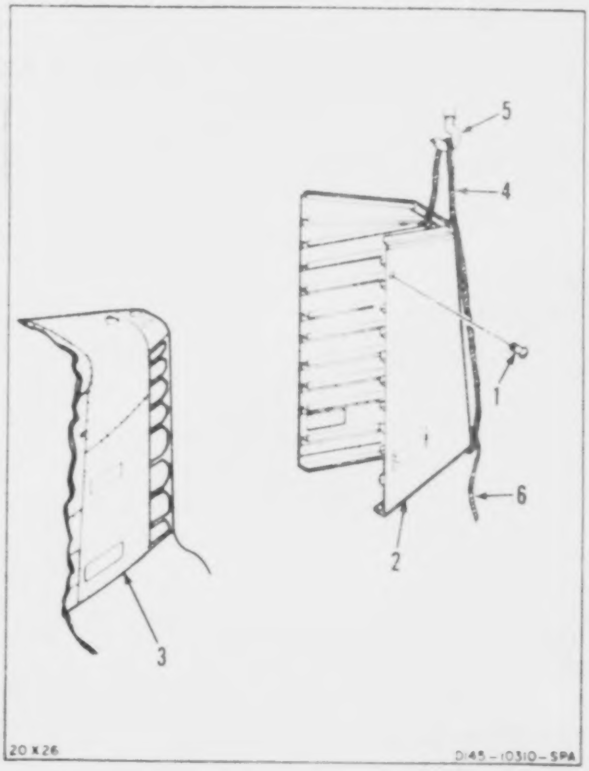
WARNING

Fairing must be supported by hoist and controlled by guideline. Otherwise injury to personnel or damage to equipment can occur.

2. Slide fairing (2) aft about **3 inches.** Tie rope (4) around aft end of fairing (2). Attach rope to hoist hook (5). Attach guideline (6) to rope.
3. Move fairing (2) aft away from pylon (3). Lower fairing to floor. Remove rope (4) and guidelines (6) from fairing.

FOLLOW-ON MAINTENANCE

None



END OF TASK

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2-287 REPAIR TRAILING EDGE FAIRING 2-287

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

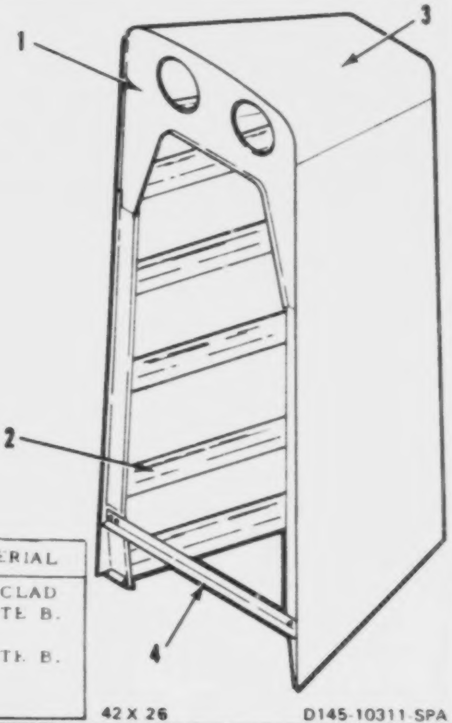
References:
TM 55-1500-204-25/1
Task 2-13

Equipment Condition:
As Required

1. If damage to formed part does not affect radius repair by patching (Task 2-13).
2. Repair damage to impregnated glass cloth laminated skin that requires simple procedures. Repair must not place restrictions on flight.

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REFER TO TM 55-1500-204-25/1 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
2	FORMER	4-PLY, NO. 181/75 GLASS CLOTH	REFER TO NOTE B.
3	SKIN	3-PLY, NO. 181/75 GLASS CLOTH	REFER TO NOTE B.
4	STIFFENER	ALCOA 22526 2024-T4	0.050 4130

42 X 26 D145-10311-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-288 INSTALL TRAILING EDGE FAIRING 2-288

INITIAL SETUP

Applicable Configurations:
All

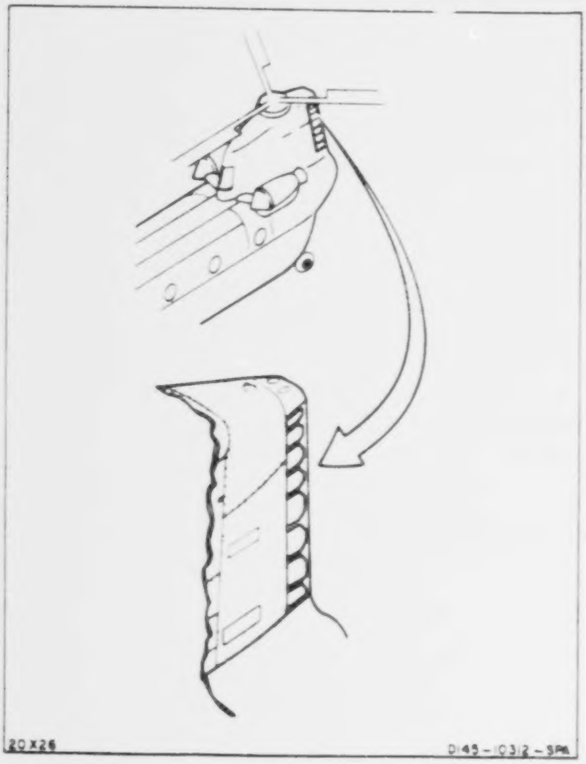
Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Hoist Minimum Capacity 100 Pounds
Workstand
Rope
Guideline

Materials:
None

Parts:
Screws
Washers

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector
68G10 Aircraft Structure Repairer

References:
TM 55-1520-240-23P
TM 55-1500-204-25/1



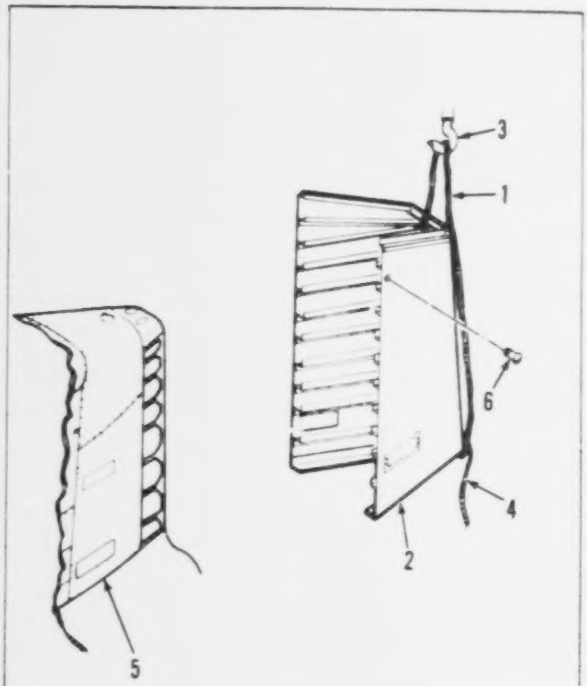
WARNING

Fairing must be supported by hoist and controlled by guideline. Otherwise injury to personnel or damage to equipment can occur.

1. Tie rope (1) around aft end of trailing edge fairing (2). Attach rope to hook (3). Attach guideline (4) to rope.
2. **Position fairing (2)** small end up on aft pylon (5). Remove rope (1) from fairing. Slide fairing fully on pylon.
3. **Install 52 rivets (6)** in fairing (2).
4. **Apply sealant** to mating surfaces of fairing (2) and pylon (5) (TM 55-1500-204-25/1).

FOLLOW-ON MAINTENANCE

Install tail position light (Task 9-65)



END OF TASK

2-289 REMOVE PYLON HINGED FAIRING (WORK PLATFORM) 2-289

INITIAL SETUP

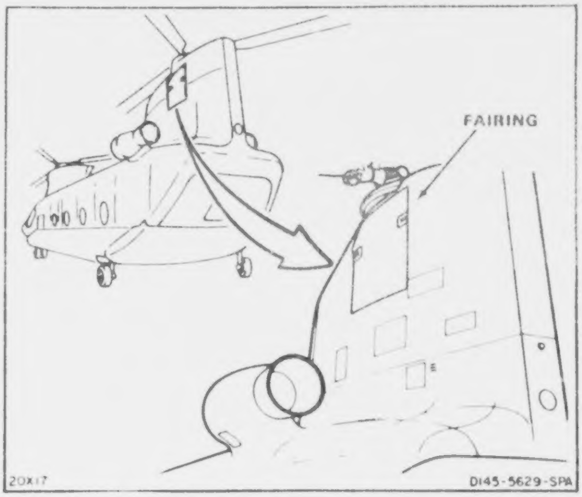
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

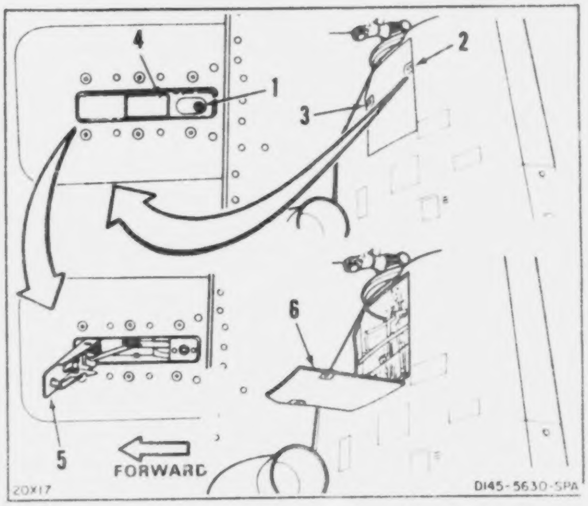
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off



NOTE

Procedure is same to remove left and right pylon hinged fairing (work platform). Removal of left platform is shown here.

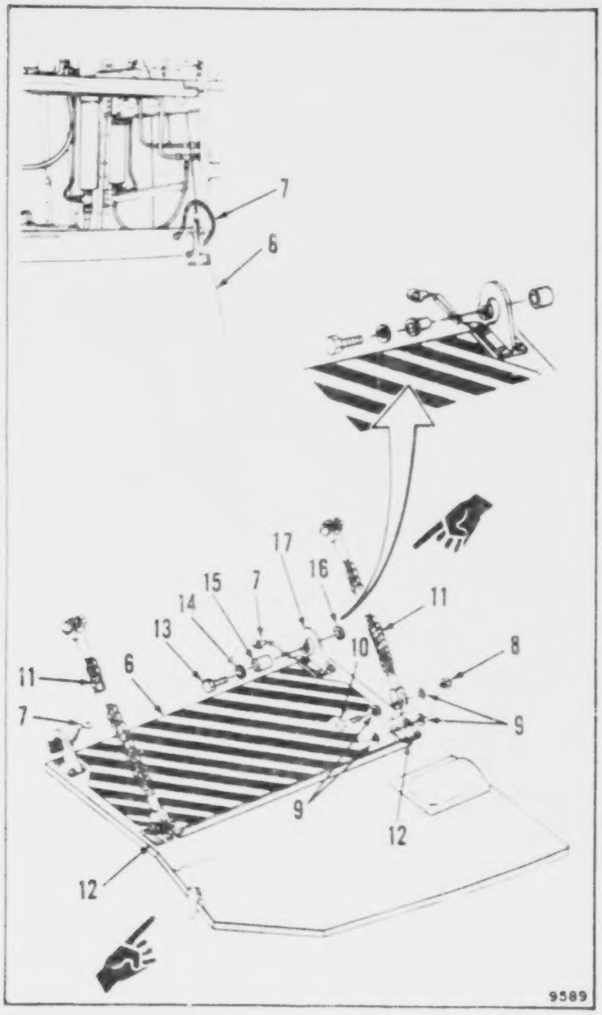
1. Loosen captive screw (1) on two latches (2 and 3).
2. Push in release spring (4) to **release latches (2 and 3).**
3. Pull latch handle (5) and **lower work platform (6)** to open position.



GO TO NEXT PAGE

2-289 REMOVE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-289

4. Have helper support platform (6)
5. **Disconnect electrical lead** (7).
6. **Remove** nut (8), four washers (9), and **bolt (10)** from two cables (11) and platform brackets (12).
7. Remove lockwire from bolt (13)
8. **Remove bolt (13),** washer (14), bushing (15), and washer (16) from hinge fitting (17)
9. **Remove work platform** (6).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-289.1 REMOVE COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) 2-289.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Workstand

Materials:

None

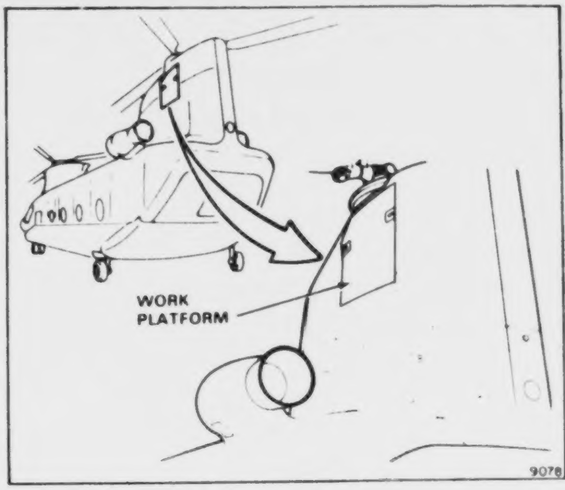
Personnel Required:

Medium Helicopter Repairer (2)

Equipment Condition:

Battery Disconnected (Task 1-39)

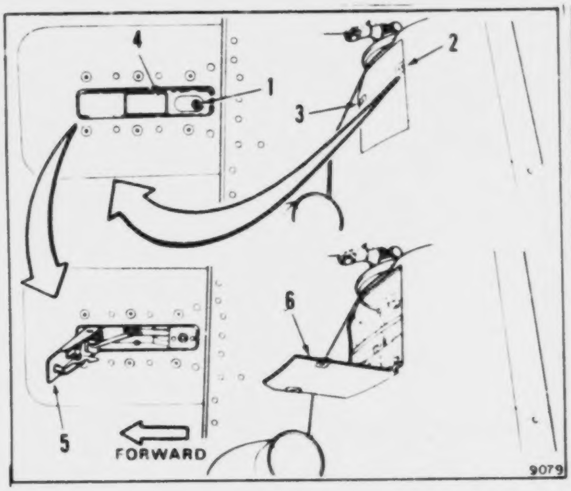
Electrical Power Off



NOTE

Procedure is same to remove left and right work platform. Removal of left platform is shown here.

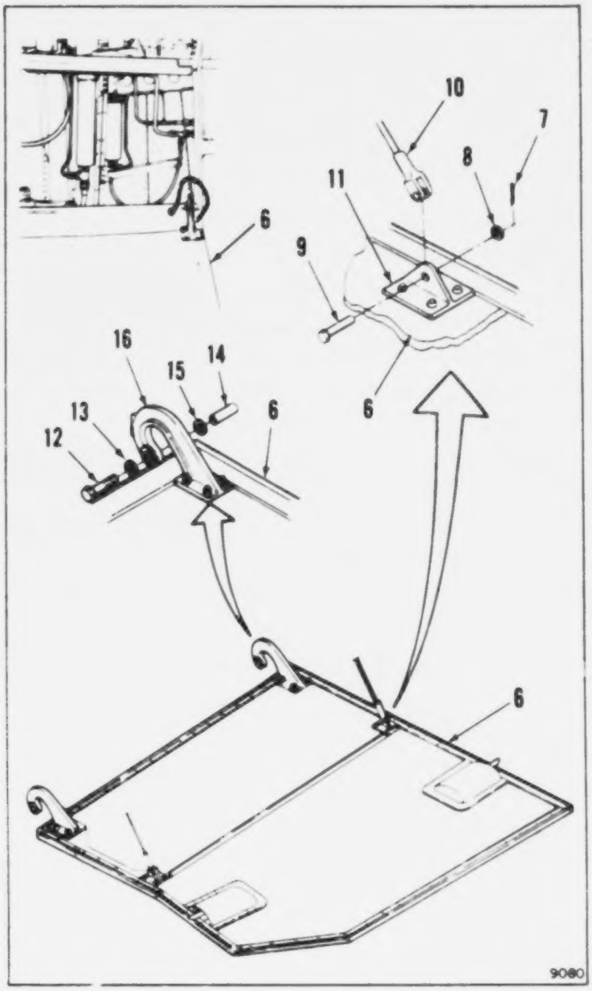
1. Loosen captive screw (1) on two latches (2 and 3).
2. Push in release spring (4) to **release latches (2 and 3).**
3. Pull latch handle (5) and **lower work platform (6)** to open position.



GO TO NEXT PAGE

2-289.1 REMOVE COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-289.1

4. Have helper support platform (6).
5. **Remove** cotter pin (7), washer (8), and **pin (9)** from each of two cables (10) and platform brackets (11).
6. Remove lockwire from bolt (12).
7. **Remove bolt (12)**, washer (13), bushing (14), and washer (15) from each of two hinge fittings (16).
8. **Remove work platform (6).**



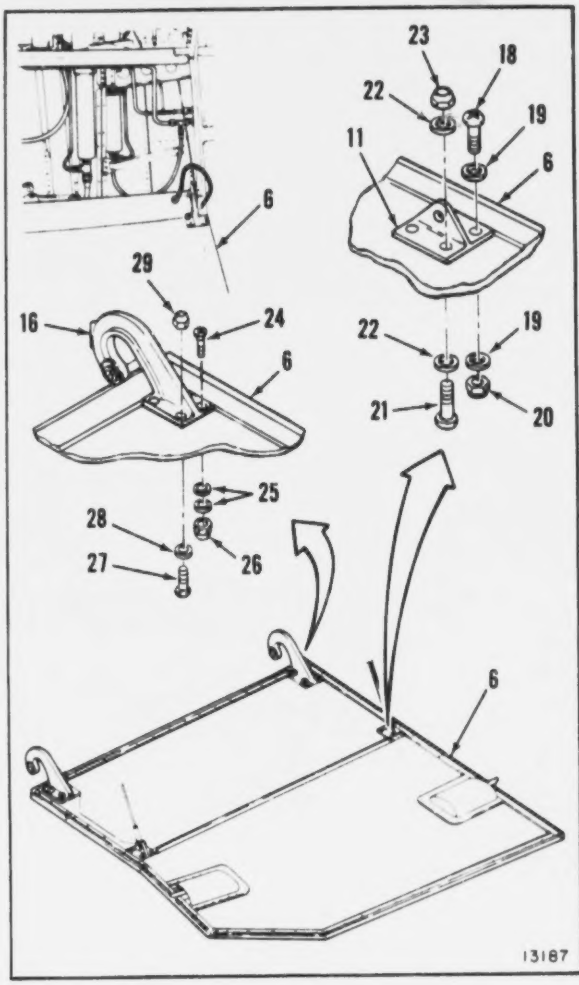
GO TO NEXT PAGE

2-289.1 REMOVE COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-289.1

NOTE

Procedure is same to remove platform brackets and hinge fittings on left and right work platforms. Left platform is shown here.

9. If necessary, remove platform brackets (11) and hinge fittings (16).
10. **Remove bolts (18),** washers (19), and nuts (20) from platform brackets (11) on inside of work platform (6).
11. **Remove bolts (21),** washers (22), and nuts (23) from platform brackets (11) through outside surface of work platform (6).
12. **Remove bolts (24),** washers (25), and nuts (26) from hinge fittings (16) on inside of work platform (6).
13. **Remove bolts (27),** washers (28), and nuts (29) from hinge fittings (16) through outside surface of work platform (6).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-290 REMOVE PYLON WORK PLATFORM LATCH 2-290

INITIAL SETUP

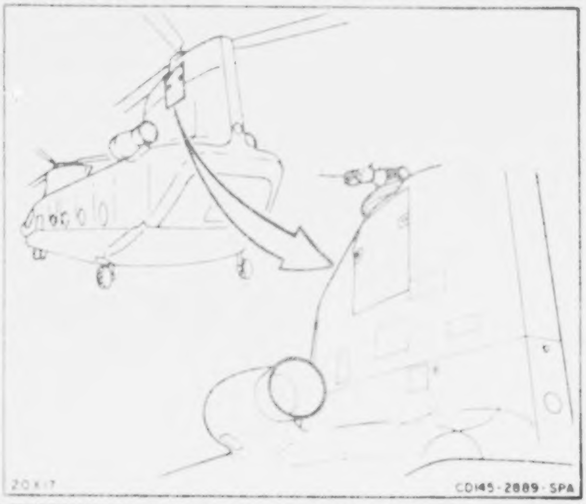
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
None

Personnel Required:
Medium Helicopter Repairer

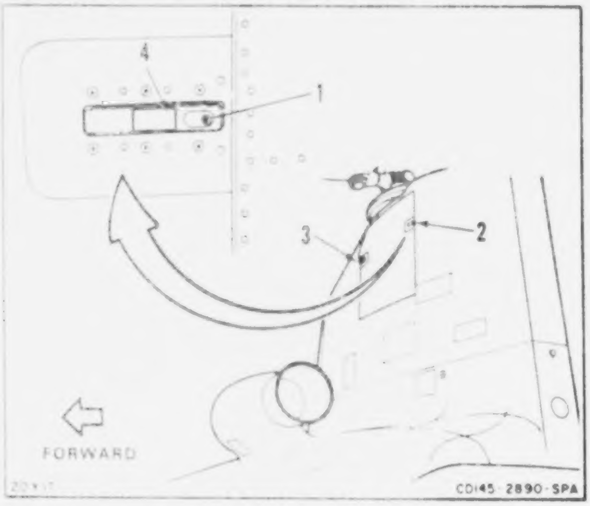
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


20X17
CD145-2889-SPA

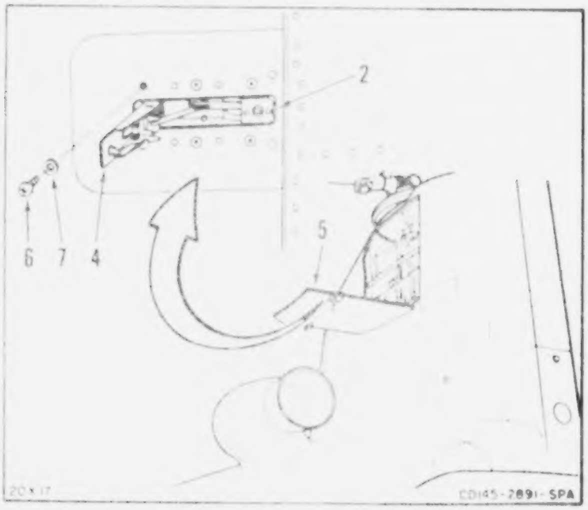
NOTE

Procedure is same to remove forward and aft latches on left and right platforms. Aft latch on left platform is shown here.

1. Loosen two captive screws (1) on latches (2 and 3).
2. Push in release spring (4) to **release latches (2 and 3)**.


4
1
3
2
FORWARD
20X17
CD145-2890-SPA

3. Pull latch handles (4) and **open work platform (5)**.
4. **Remove six screws (6)** and washers (7) from latch (2).


2
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6
7
4
20X17
CD145-2891-SPA

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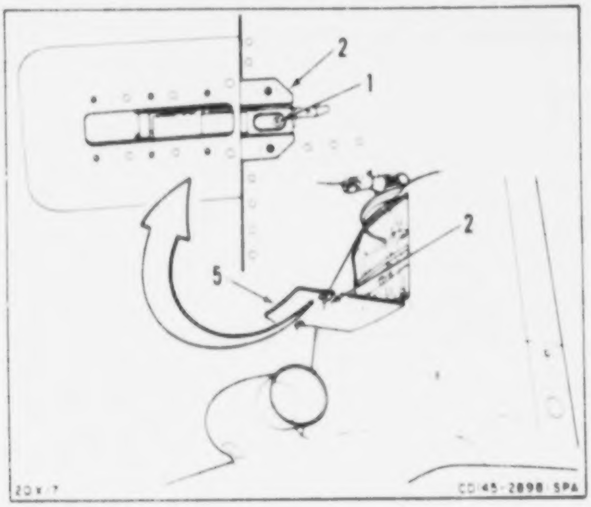
2-290 REMOVE PYLON WORK PLATFORM LATCH (Continued) 2-290

5. Close latch (2). Tighten captive screw (1).
6. Slide latch (2) aft and **remove latch** from platform (5).


2
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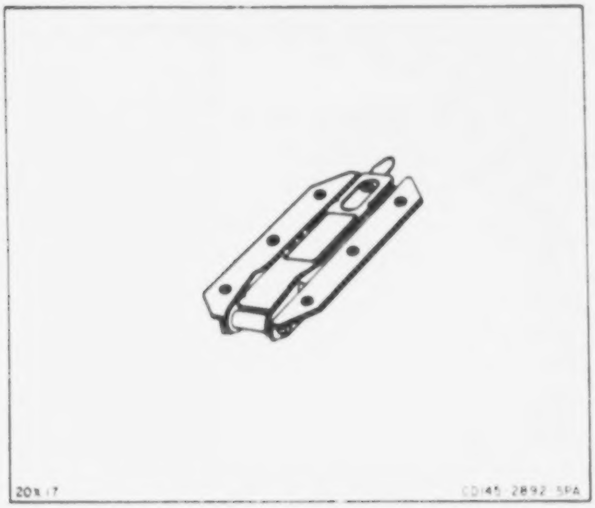
CD145-2898-SPA

FOLLOW-ON MAINTENANCE:

None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CD145-2892-SPA

END OF TASK

2-291 INSTALL PYLON WORK PLATFORM LATCH 2-291

INITIAL SETUP

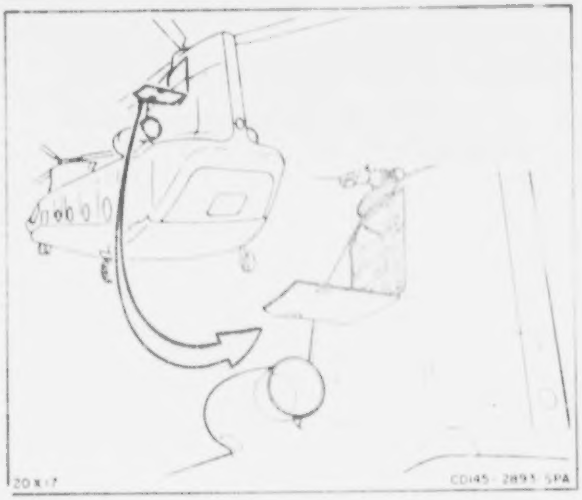
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer

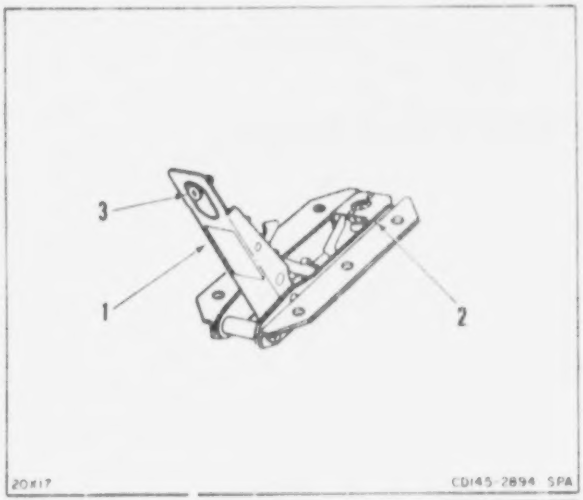
References:
TM 55-1520-240-23P


20 x 17
CDI45-2893 SPA

NOTE

Procedure is same to install forward or aft latches on left or right platforms. Aft latch on left platform is shown here.

1. Close latch handle (1) on latch (2) if needed.
2. Tighten captive screw (3) if needed.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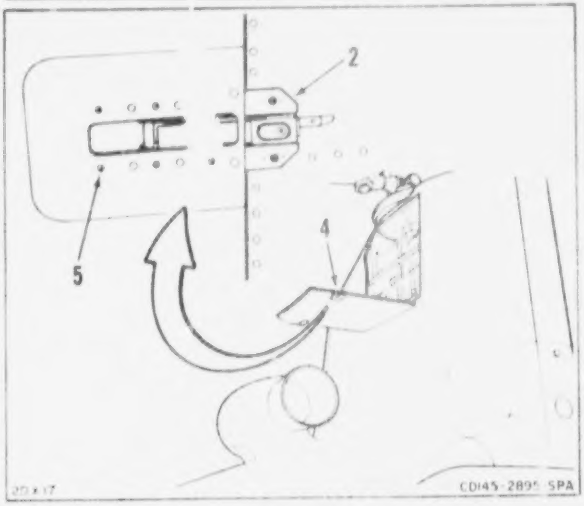
2
20 x 17
CDI45-2894 SPA

3. Position latch (2) on work platform (4). Slide latch forward and align with mounting holes (5).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20 x 17
CDI45-2895 SPA

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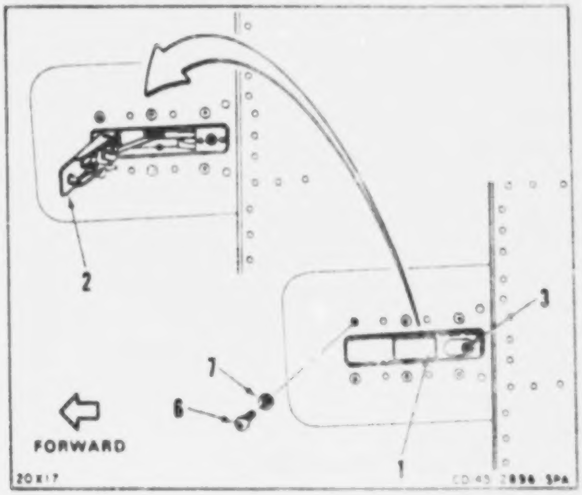
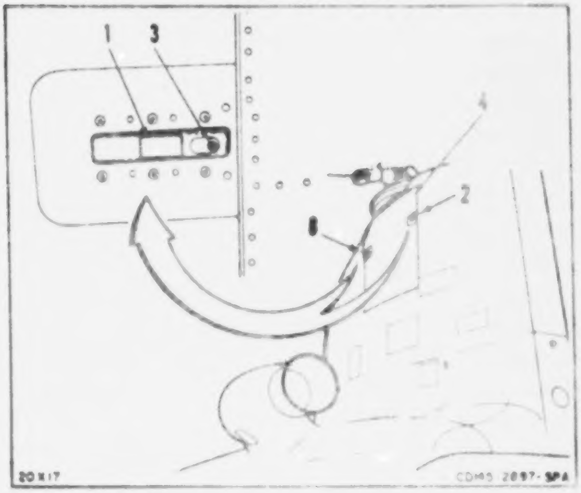
2-291 INSTALL PYLON WORK PLATFORM LATCH (Continued) 2-291

4. **Install six screws (6)** and washers (7).
5. Loosen captive screw (3).
6. Push in forward end of handle (1) to release latch (2).


2
3
7
6
1
FORWARD
20X17
CD45 2896 SPA

7. **Close platform (4).**
8. Close handle (1) on latches (2 and 8).
9. Tighten captive screw (3) on latches (2 and 8).


1
3
4
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8
20X17
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FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) 2-291.1

INITIAL SETUP

Applicable Configurations:

With 20

Tools:

- Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
- Pencil Compass
- Straightedge
- Heat Lamp
- Scissors
- Trip Balance, NSN 6670-00-401-7195
- Electric Drill
- Drill Bits
- Shot Bags
- Hypodermic Syringe
- Plastic Squeeze Bottle (E366)
- Vacuum Cleaner
- Craftsman's Knife
- Vacuum Pump

Materials:

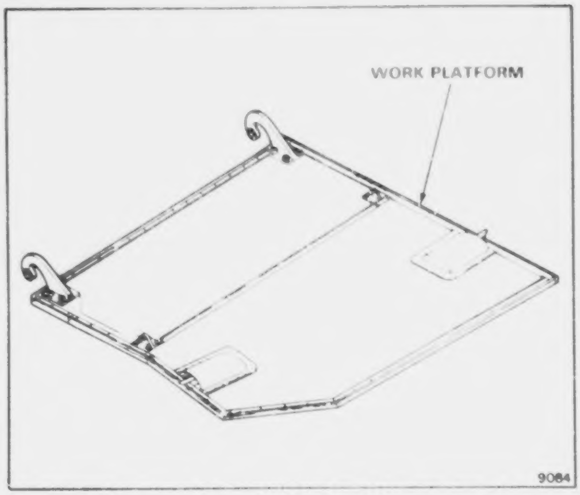
- Abrasive Paper (E7 thru E9)
- Acetone (E20)
- Cloth (E120)
- Peel Ply (E270)
- Gloves (E186)
- Glass Cloth (E130 and E132)
- Teflon-Impregnated Fabric (E170)
- Nomex Honeycomb Core (E150.1)
- Fiberglass Laminate (E168.1)
- Rubber Pad (E318)
- Masking Tape (E388)
- Sealing Tape (E396)
- Nylon Tape (E390.1)
- Aluminum Plate (E71)
- Adhesive (E40 or E41)
- Wood Spatula (E424)
- Temperature Indicating Strips (E413)
- Polyethylene Cup (E157)
- Nylon Sheet (E248.1)

Personnel Required:

- Aircraft Structure Repairer
- Inspector

References:

- TM 55-1520-240-23P



Equipment Condition:

Off Helicopter Task

General Safety Instructions:

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesives (E40 and E41) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

1. Repair of composite work platform (1) includes the following procedures:

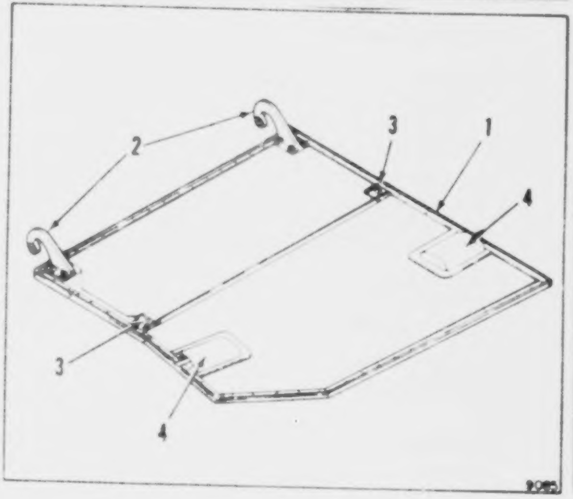
NOTE

Repairs within 2 inches of hinge fittings (2), platform brackets (3), or latch covers (4) are not permitted.

Damage	*Steps*
Surface Abrasion	2-9
Bond Void (To 2 Square Inches)	10-20
Bond Void (Over 2 Square Inches)	21-44
Puncture Through One Skin and Core (To 1 Square Inch)	45-56
Puncture Through One Skin and Core (Over 1 Square Inch)	57-61
Puncture Through Both Skins and Core (To 1 Square Inch)	62-73
Puncture Through Both Skins and Core (Over 1 Square Inch)	74-87

NOTE

Procedure is same to repair left or right work platform.



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

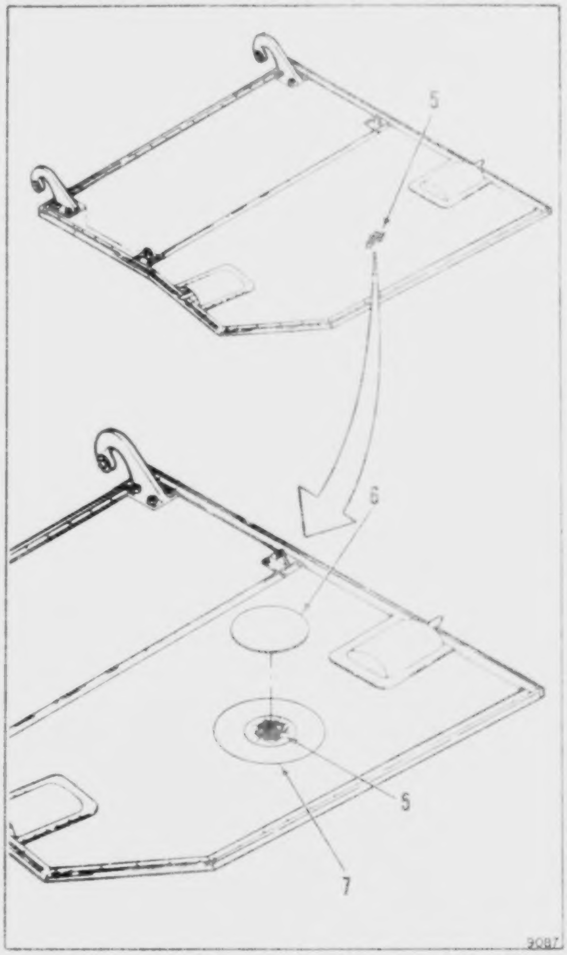
SURFACE ABRASION

2. **Outline area of damage (5)** with circle or oblong. Use pencil compass and straightedge.
3. Cut a piece of fiberglass laminate (E168.1) (6) large enough to overlap outline of damaged area (2) by 1.0 inch in all directions.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

4. **Remove finish** down to primer from an area around damage (5) 1.5 inches larger in all directions than damage. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
5. **Clean area of finish removal (7).** Use clean cloth (E120) damp with acetone (E20). Wipe area dry with a clean cloth. Repeat until there is no residue on dry cloth.
6. **Prepare adhesive mixture.** (Refer to step 88.) Apply coat of adhesive to area of finish removal (7).
7. **Remove protective film** from both sides of laminate piece (6). Carefully pull at right angle to direction of fibers.
8. Apply coat of adhesive to underside of laminate piece (6). Center piece over damage (5) and press down.
9. **Bond and cure repair.** (Refer to steps 89. through 101.)



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

***BOND** VOID (TO 2 SQUARE INCHES)*

10. **Determine extent of void (8)** by tapping area with coin. Outline area of void with circle or oblong. Use pencil compass and straightedge.

NOTE

If area of void is greater than 2 square inches, go to step 40.

11. Cut a piece of fiberglass laminate (E168.1) (9) large enough to overlap outline of void (8) by 1.0 inch in all directions.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

12. **Remove finish** down to primer from an area 1.5 inches larger in all directions than outline of void (8). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).

13. **Drill several small holes (10)** through void (8) near edge. Use a number 30 or 40 drill.

14. **Clean area** with a clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth.

15. **Prepare mixture of adhesive.** (Refer to step 88.) **Inject adhesive into void (8)** through holes (10) until void and core (11) under void are full. Use hypodermic syringe (E380).

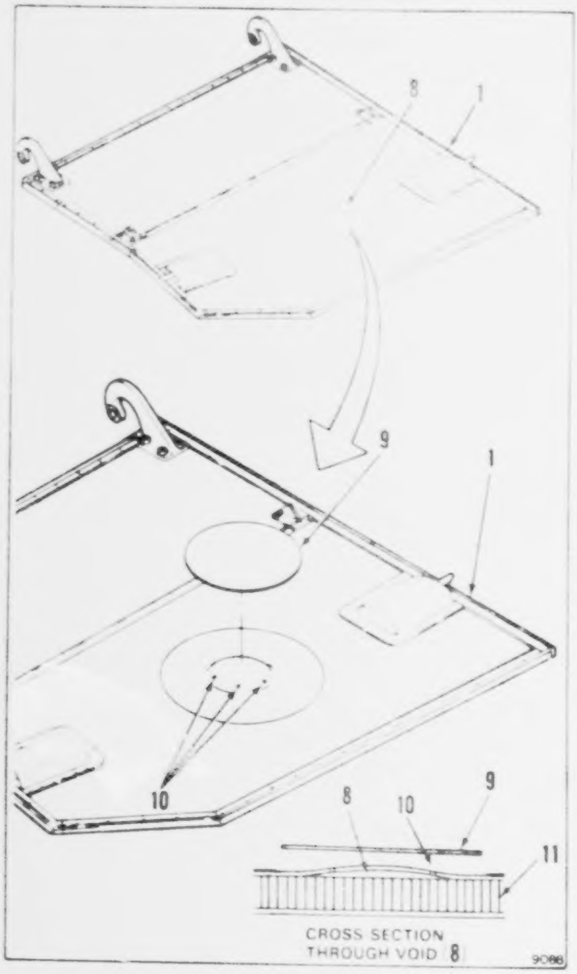
16. Cover holes (10) with tape (E390.1). Turn work platform (1) over to prevent adhesive from running into core.

17. **Press down firmly on void (8).** Let excess adhesive squeeze out through holes (10).

18. **Remove protective film** from both sides of laminate piece (9). Carefully pull at right angle to direction of fibers.

19. Apply coat of adhesive to underside of laminate piece (9) and to repair area of platform (1) within 1/2 inch of finish removal line. Center piece over void (8) and press down.

20. **Bond and cure repair.** (Refer to steps 89 through 101.)



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

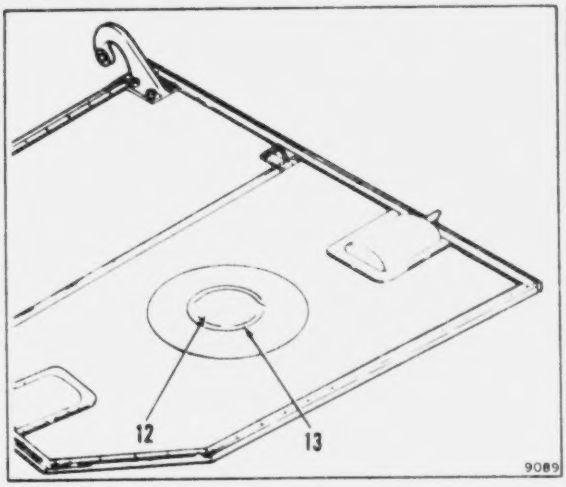
BOND VOID (OVER 2 SQUARE INCHES)

21. **Determine extent of void (12)** by tapping area with coin. **Outline area** of void with a circle or oblong. Use pencil compass or straightedge.

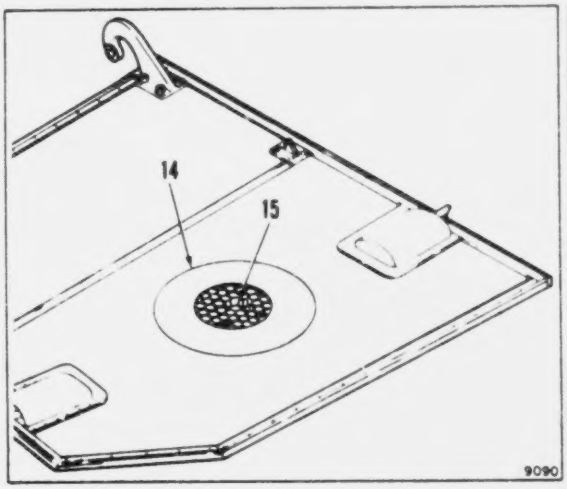
NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

22. **Remove finish** down to primer from an area 1.5 inches larger in all directions than outline (13). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).



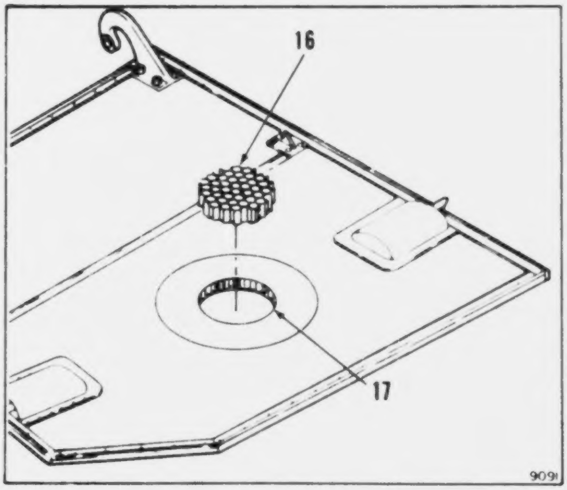
23. **Cut away unbonded skin.** Use craftsman's knife.
24. **Examine exposed core material (14).** If core is not damaged, clean the core and surrounding area with clean cloths (E120) damp with acetone (E20). Wipe dry with clean dry cloth. Go to step 33.
25. **If core (14) is damaged, cut out core to layer of adhesive on opposite skin (15).** Be careful not to damage skin. Use a chisel.
26. Roughen surface of adhesive on opposite skin (15) to remove gloss.



NOTE

Core material must be clean and dry for adhesive to hold.

27. **Cut core plug (16)** in shape of cavity (13) but 1/8 inch larger all around. Orient ribbon in same direction as existing core. Use core material (E150.1).
28. **Fit core plug (16)** into cavity (17) to check fit.



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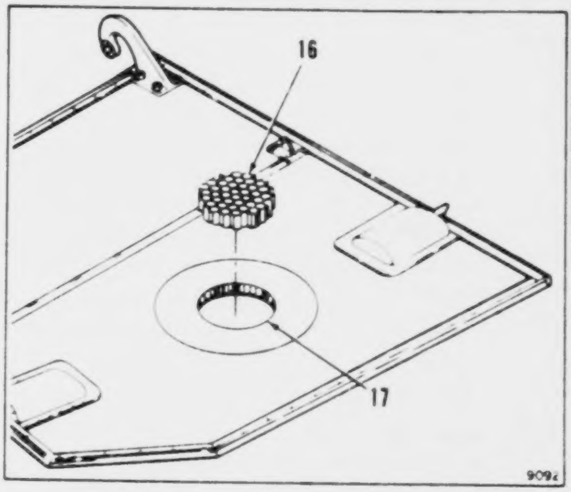
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

29. **Remove plug (16).**

30. **Clean cavity (13),** surrounding area, and core plug (16). Use a vacuum cleaner and a clean cloth (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.

31. **Prepare mixture of adhesive.** (Refer to step 88.) Apply coat of adhesive to sides and bottom of cavity (17).

32. **Apply** coat of **adhesive to** sides and bottom of **core plug (16).** Set plug in cavity (17). Align matchmarks if applicable.



33. Cut two pieces of fiberglass laminate (E168.1) (18) to fit in cavity (17) over core plug (16).

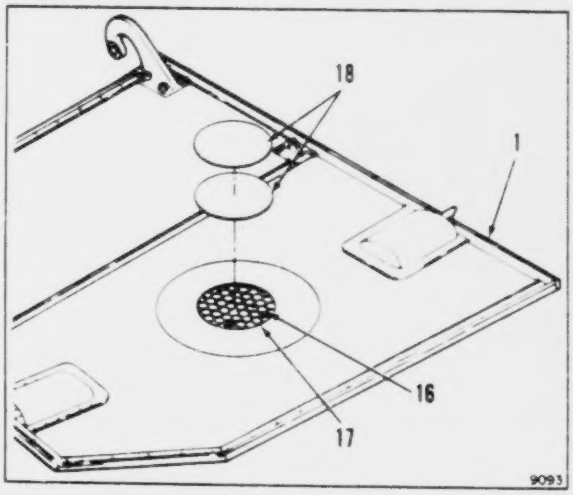
34. Check that pieces (18) fit flush with platform (1). Remove pieces.

35. **Remove protective film** from both sides of two laminate pieces (18). Carefully pull at right angle to direction of fibers.

36. Prepare mixture of adhesive. (Refer to step 88.)

37. Coat underside of one piece (18) with adhesive. Press piece against core plug (16) in cavity (17).

38. Apply coat of adhesive to top of installed piece (18) and underside of second piece. Install second piece in cavity over first piece. Press against piece to seat it flush with platform (1).



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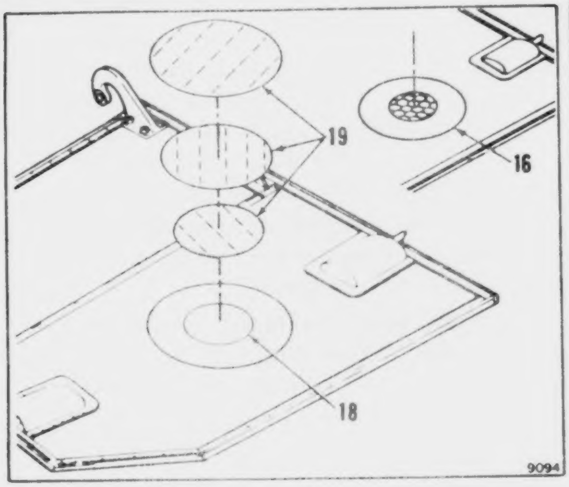
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

39. Cut three pieces of fiberglass laminate (E168.1) (19). Make the smallest piece large enough to overlap core (16) or laminate piece (18) 1.0 inch in all directions. Make each additional piece large enough to overlap the previous piece 1 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are installed.
40. Check that finish on platform (1) is removed for at least 1/2 inch more in all directions than size of largest piece of laminate (19).
41. **Remove protective film** from each side of three fiberglass laminate pieces (19). Carefully pull at right angle to direction of fibers.



NOTE

Laminate pieces must be installed so that fiber orientation between each of the three pieces will be 45 degrees .

42. Apply adhesive to underside of laminate piece (19), top of installed piece (18), and to the surrounding area of platform (1) to within 1/2 inch of finish removal line. Center smallest piece over repair area and press in place.
43. Apply adhesive to top of installed piece (19) and underside of next largest piece. Position larger piece on installed piece and press in place. Repeat procedure for third (largest) piece.
44. Bond and cure repair. (Refer to steps 89. through 101.)

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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

PUNCTURE THROUGH ONE SKIN AND CORE (TO 1 SQUARE INCH)

45. **Outline area of puncture (20)** with circle or oblong. Use pencil compass and straightedge.

46. Remove loose fragments and debris from area of puncture (20). **Remove finish** down to primer from an area 2.5 inches larger in all directions than outline around puncture (20). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).

47. **Prepare mixture of adhesive.** (Refer to step 88.) **Fill puncture (20)** with adhesive mixture to surface of platform (1).

CAUTION

Do not heat platform surface over 160°F (71°C). Higher temperatures can damage cover.

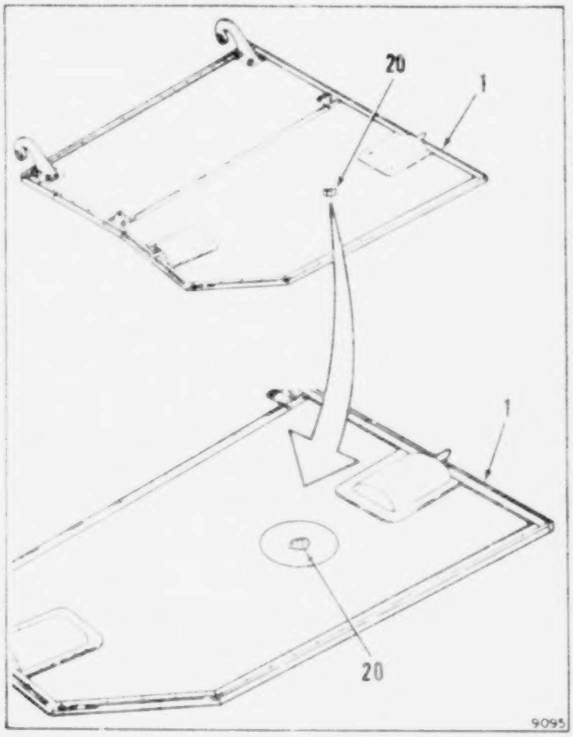
48. **Cure adhesive** at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours.

49. **Fair cured adhesive** to surface of platform (1). Use abrasive paper (E9).

50. **Clean area** of finish removal. Use clean cloth (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.



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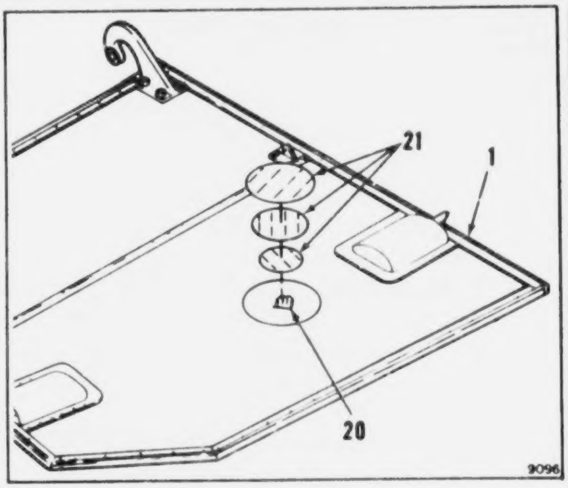
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

51. Cut three pieces of fiberglass laminate (E168.1) (21). Make the smallest piece large enough to overlap filled puncture (20) 1.0 inch in all directions. Make each additional piece large enough to overlap the previous piece 1 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are installed.

52. Check that finish on platform (1) is removed for at least 1/2 inch more in all directions than size of largest piece of laminate (21).

53. **Remove protective film** from each side of three fiberglass laminate pieces (21). Carefully pull at right angle to direction of fibers.



NOTE

Laminate pieces must be installed so that fiber orientation between the two pieces will be 45 degrees when they are installed.

54. Apply adhesive to underside of smallest laminate piece (21), top of filled puncture (20), and to the surrounding area of platform (1) to within 1/2 inch of finish removal line. Center smallest piece over repair area and press in place.

55. Apply adhesive to top of installed piece (21) and underside of next largest piece. Position second piece on installed piece and press in place. Repeat procedure for third (largest) piece.

56. Bond and cure repair. (Refer to steps 89. thru 101.)

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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

PUNCTURE THROUGH ONE SKIN AND CORE (OVER 1 SQUARE INCH)

57. **Outline area of puncture (22)** with a circle or oblong. Use pencil compass and straightedge.

NOTE

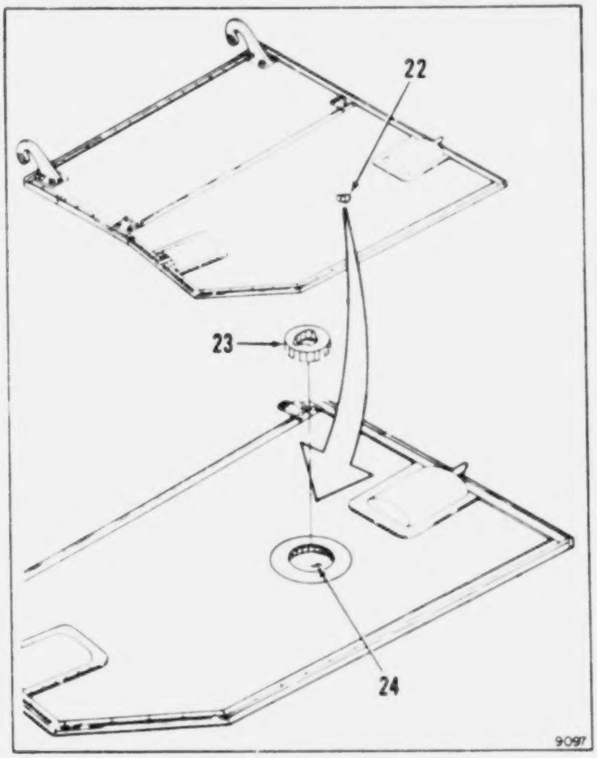
Do not sand into glass fibers. Complete removal of primer is not necessary.

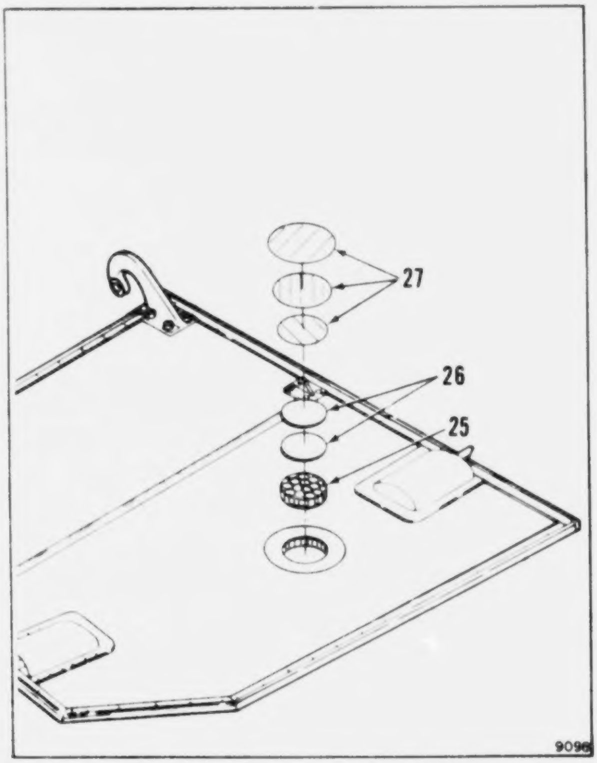
58. **Remove finish** to primer from an area 3.5 inches larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).

59. **Cut out punctured skin and core plug (23)** to layer of adhesive on opposite skin (24). Use craftsman's knife and chisel. Be careful not to damage skin.

60. Roughen surface of adhesive on opposite skin (24) to remove gloss.

61. **Complete repair with core plug (25) and fiberglass laminate (26 and 27).** (Refer to steps 27. through 44.)





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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

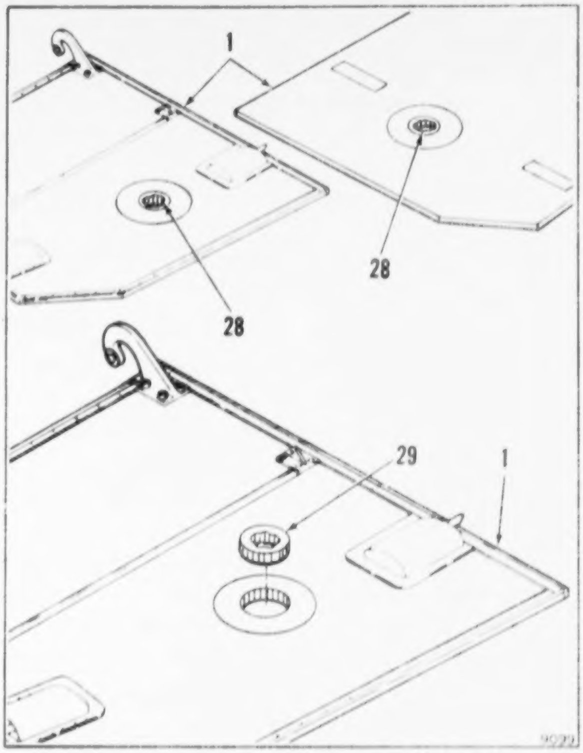
PUNCTURE THROUGH BOTH SKINS AND CORE (UP TO 1 SQUARE INCH)

62. **Outline area of puncture (28)** on both sides of platform (1) with a circle or oblong. Use pencil compass and straightedge.

NOTE

Do not sand into glass fibers. Complete removal of primer is not necessary.

63. **Remove finish** down to primer from an area on both sides of platform (1) 1.5 inches larger in all directions than outline. Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
64. **Cut out punctured skin and core plug (29)**. Work from both sides of platform (1) as needed. Use craftsman's knife.



65. **Cover cutout (30) on top of platform (1).** Use nylon tape (E390.1) (31).
66. **Prepare mixture of adhesive.** (Refer to step 88.) **Fill cutout (30)** from bottom of platform (1) to bottom surface (32) with adhesive (33).

CAUTION

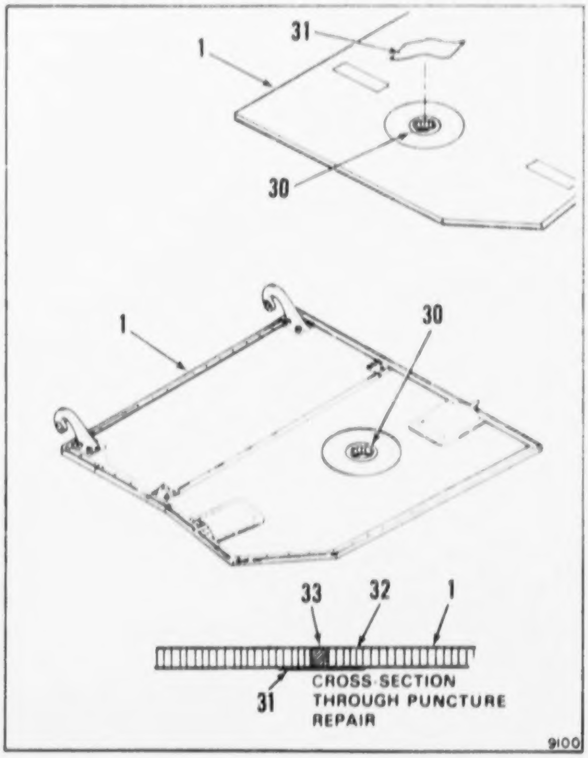
Do not heat platform surface over 160°F (71°C). Higher temperatures can damage platform.

67. **Cure adhesive** at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours.

68. Remove tape (31). Fair cured adhesive to surface of platform (1) on top and bottom. Use abrasive paper (E9).



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

69. **Clean area of finish removal** on both sides of platform (1). Use clean cloths (E120) damp with acetone (E20). Wipe area dry with clean dry cloth. Repeat until there is no residue on dry cloth.

70. **Cut three pieces of fiberglass laminate (E168.1) (34)** for each side of platform (1). Make smallest piece large enough to overlap cured adhesive (33) 1 inch in all directions. Make each additional piece large enough to overlap previous piece 1 inch in all directions. If cutout is not circular, cut pieces so that fiber orientation between pieces will be 45 degrees when they are installed.

71. **Prepare new mixture of adhesive.** (Refer to step 88.)

72. **Cover each side of puncture repair** as follows.

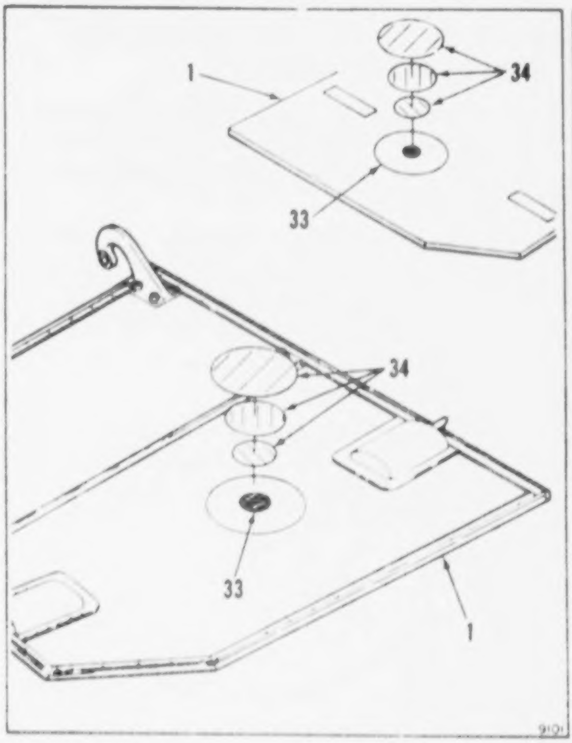
    a. Apply a coat of adhesive to cured adhesive (33) and area of finish removal.

    b. **Remove protective film from each side of two fiberglass laminate pieces (34). Carefully pull at right angle to direction of fibers.**

    c. Coat underside of smallest laminate piece (34) with adhesive. Center piece over repair. Press down against platform (1).

    d. Apply adhesive over smallest installed piece (34) and underside of next largest piece. Position next largest piece on installed piece so that fiber orientation between pieces is 45 degrees. Press down against installed piece. Repeat procedure for third (largest) piece.

73. **Bond and cure repair.** (Refer to steps 89. through 101.)



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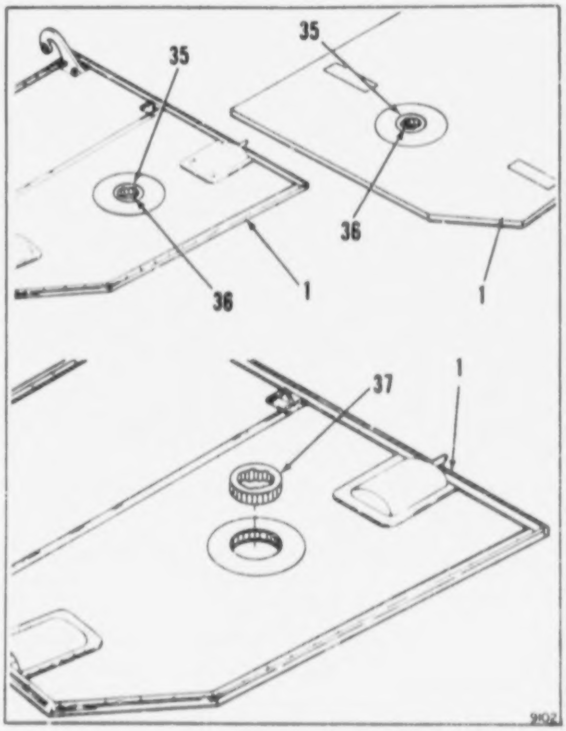
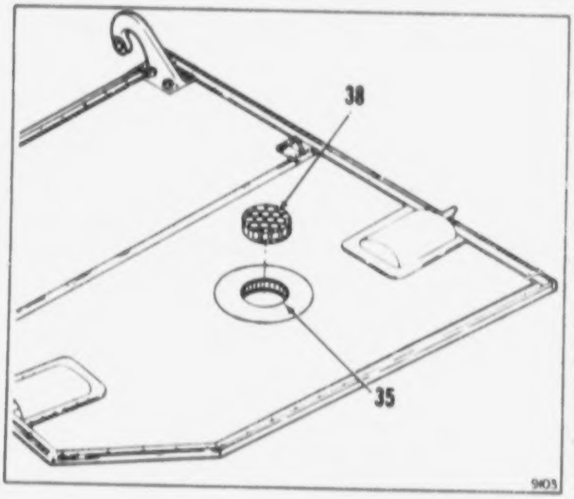
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

PUNCTURE THROUGH BOTH SKINS AND CORE (OVER 1 SQUARE INCH)

74. **Outline area of puncture (35)** on both sides of platform (1) with a circle or oblong. Use pencil compass and straightedge.
75. **Remove finish** from an area **on both sides** of platform (1) 3.5 inches larger in all directions than puncture outline (36). Use abrasive paper (E8). Use cloths (E120) damp with acetone (E20) as needed to soften finish. Wear gloves (E186).
76. **Cut out punctured skin and core plug (37).** Work from both sides of platform (1) as needed. Use craftsman's knife.



77. **Cut new core plug (38)** in shape of cutout (35) but 1/8 inch larger all around. Orient ribbon in same direction as existing core. Use core material (E150.1).
78. **Fit core plug (38)** into cutout (35).



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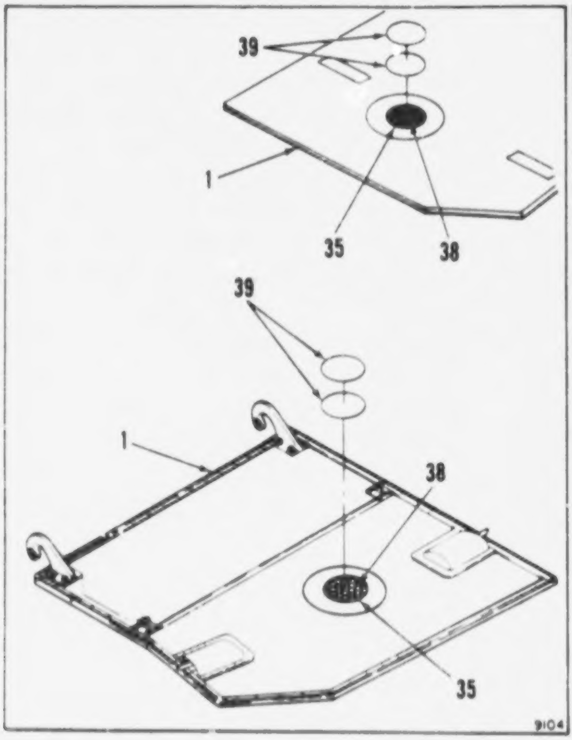
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

79. **Cut two pieces of fiberglass laminate (E168.1) (39)** to fit cutout (35) on both sides of platform (1).
80. Check that pieces of laminate (E168.1) (39) fit against installed core plug (38) flush with platform (1) on both sides. Remove laminate and plug.



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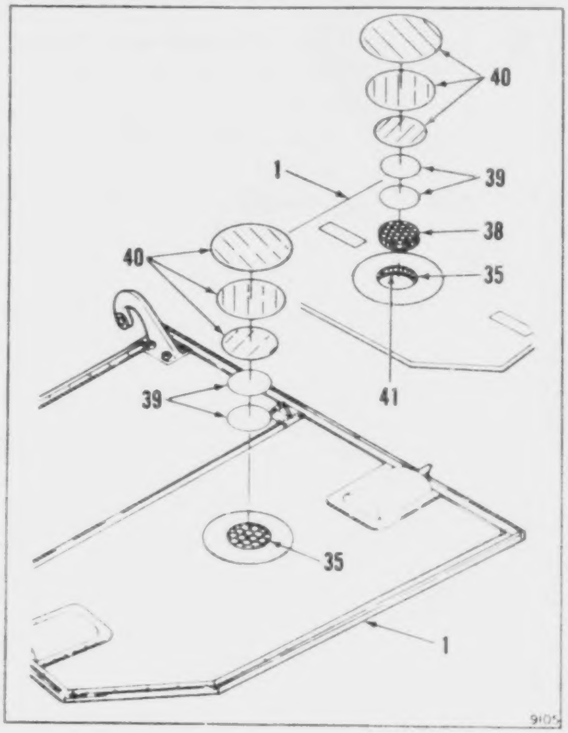
2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

81. **Cut three pieces of fiberglass laminate (E168.1) (40)** for each side of platform (1). (Refer to step 70.)
82. **Clean cutout (35)** and surrounding area, core plug (38), and laminate (39). Use clean cloths (E120) damp with acetone (E20). Wipe dry with a clean dry cloth. Repeat until there is no residue on dry cloth.
83. **Prepare mixture of adhesive.** (Refer to step 88.)
84. **Apply coat of adhesive** to sides of core plug (38). **Set plug in cutout (35)** flush with surrounding core (41). **Align matchmarks, if applicable.**
85. Install laminate pieces (39) over core (38) on each side of platform (1) as follows:
    a. **Remove protective film** from each side of two fiberglass laminate pieces (39). Carefully pull at right angle to direction of fibers.
    b. Apply a coat of adhesive to underside of one piece (39). Press piece against plug (38).
    c. Apply coat of adhesive to top of installed piece (39) and underside of second piece. Press against second piece to firmly seat flush with surrounding skin of platform (1).



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

86. **Cover each side of repair** as follows:

   a. Apply coat of adhesive to top of laminate piece (39) and to surrounding area of platform (1) within 0.5 inch of finish removal line.

   b. **Remove protective film** from each side of three fiberglass laminate pieces (40). Carefully pull at right angle to direction of fibers.

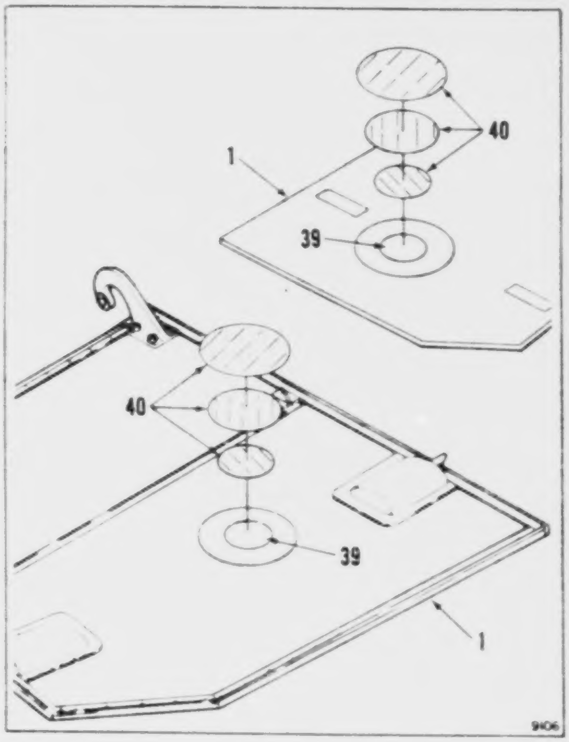
   NOTE

   Laminate pieces must be installed so that fiber orientation between each of the three pieces will be at 45 degrees.

   c. **Coat underside** of smallest laminate piece (40) with adhesive. Center piece over repair area and **press in place.**

   d. Apply **coat** of adhesive to **top of installed piece (40) and underside of next largest piece.** Position larger piece on installed piece so that fiber orientation between pieces is 45 degrees. Press down against installed piece. Repeat procedure for third (largest) piece.

87. **Bond and cure repair.** (Refer to steps 89. through 101.)



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

ADHESIVE PREPARATION

NOTE

Adhesive will cure in 2 hours at 150°F to 160°F (66°C to 71°C). A serviceable cure can be achieved at 70°F to 80°F (21°C to 27°C) in 24 hours. Pressure may be removed after 2 hours.

88. Mix adhesive EA9309.3NA (E40 or E41) as follows:

NOTE

Prepackaged adhesive (E40) is preferred. Use adhesive (E41) only if prepackaged kit is not available.

a. Mix tube of adhesive (E40) according to instructions on kit.

b. Prepare adhesive (E41) as follows:

   (1) Weigh 100 parts of resin (pink paste) and 23 parts of hardener (blue liquid). Use trip balance.

   (2) Mix parts in polyethylene cup (E157) until color is uniform dark pink. Use wood spatula (E424).

NOTE

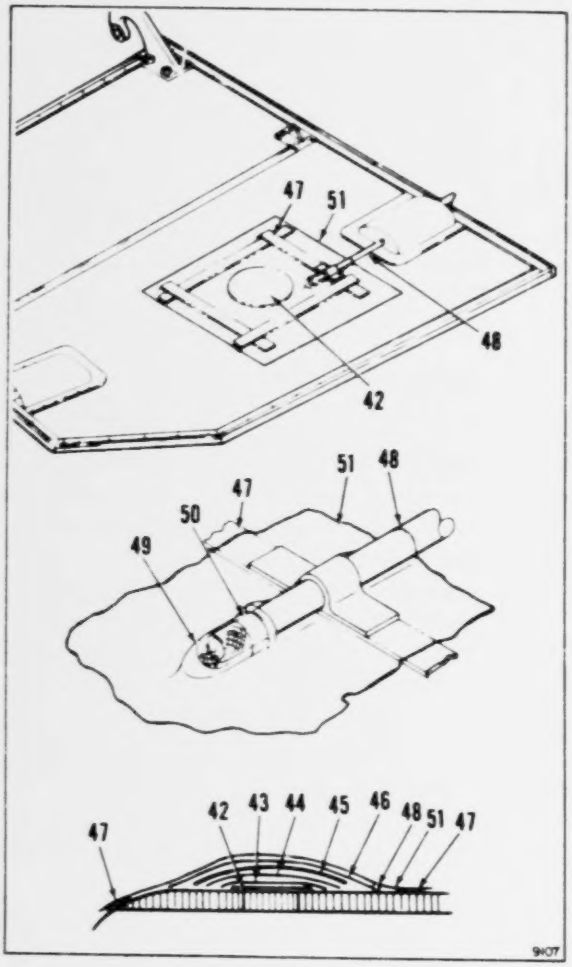
Working life of adhesive (E41) is 30 minutes.

GO TO NEXT PAGE

2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

BOND AND CURE REPAIR

89. **Cover repair (42) with sheet of peel ply** (E270) (43) **and** sheet of **teflon-impregnated fabric (E170)** (44). Each sheet shall be large enough to overlap repair 1 inch in all directions.
90. **Cover teflon-impregnated fabric** (E170) (44) **with rubber pad** (E318) (45). **Cover rubber pad with glass cloth** (E132) (46).
91. **Surround cloth** (E132) (46) **with** border (47) of **sealing tape** (E396) (47). Keep tape at least 1 inch outboard of cloth on all sides.
92. **Attach tube (48)** to vacuum pump hose. **Wrap end of tube** with two layers of glass cloth (E132) (49). Secure cloth to tube with masking tape (E388) (50).
93. **Place tube (48) on glass cloth** (E132) (46). **Wrap tube with sealing tape** (E396) where tube crosses border (47) of sealing tape (E396).
94. Press tube (48) against tape (47) to make an airtight seal. Check that glass cloth (49) on end of tube (48) is in direct contact with layer of glass cloth (46).
95. **Cover area with nylon sheet** (E248.1) (51). Press sheet smoothly against tape (47) to make an airtight seal.
96. **Start vacuum pump.** Set pump for vacuum of about 30 inches Hg.
97. Shut off pump. Vacuum shall not drop more than 5 inches Hg in 5 minutes. Maintain vacuum of at least 20 inches Hg throughout adhesive cure.
98. If need to maintain vacuum, shut down vacuum pump and reposition nylon sheet (51) or tape (47). Start pump.



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2-291.1 REPAIR COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-291.1

CAUTION

Do not exceed 160°F (71°C) at surface of platform. Damage to platform can occur.

99. Cure adhesive at 140°F to 160°F (60°C to 71°C) for 2 hours. Use heat lamp. Monitor temperature with temperature indicating strips (E413).

NOTE

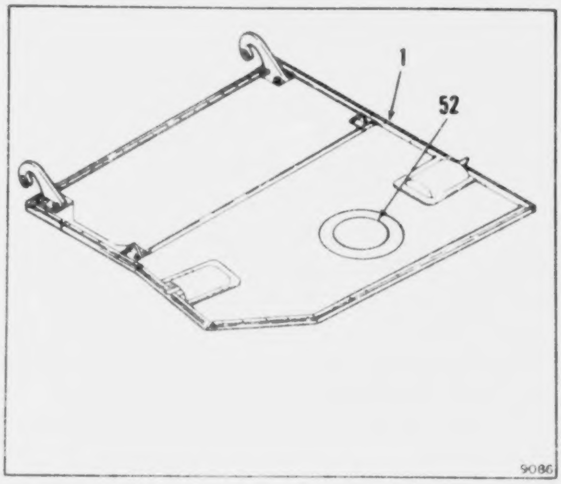
Serviceable cure can be achieved without heat at 70°F to 80°F (21°C to 27°C) in 24 hours. Vacuum may be removed after 2 hours.

100. Turn off vacuum pump. Remove vacuum bagging materials.
101. Chamfer circumference of fiberglass laminate patch (52). Fair adhesive squeezeout to platform (1) if needed. Use abrasive paper (E7).

INSPECT

FOLLOW-ON MAINTENANCE:

Refinish repaired area (Tasks 2-353 and 2-356).



END OF TASK

2-292 INSTALL PYLON HINGED FAIRING (WORK PLATFORM) 2-292

INITIAL SETUP

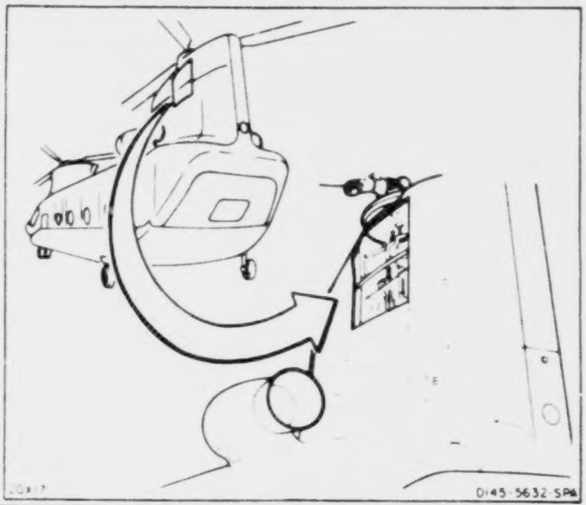
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692
Workstand

Materials:
Lockwire (E231)

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

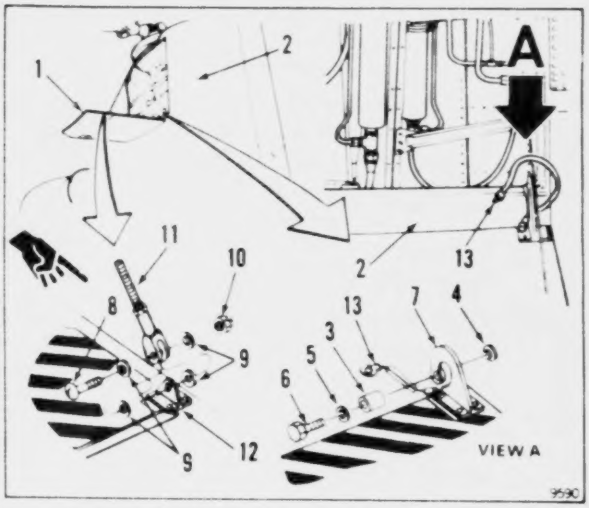
References:
TM 55-1520-240-23P



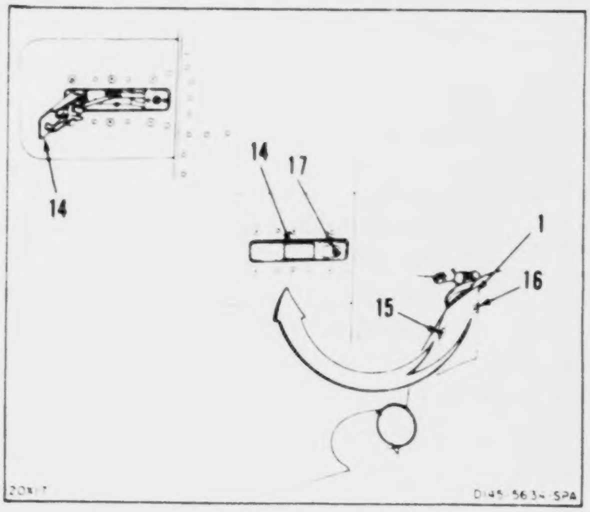
NOTE

Procedure is same to install left and right pylon hinged fairing (work platform). Installation of left platform is shown here.

1. **Position work platform (1)** on pylon (2). Have helper support platform.
2. **Install two bushings (3 and 4),** washer (5) **and bolt (6)** through hinge fittings (7) and pylon (2) on each side of platform (1).
3. Lockwire bolt (6). Use lockwire (E231).
4. Install bolt (8), four washers (9), nut (10), and support cable (11) in bracket (12) on each side of platform (1).
5. **Connect electrical lead (13).**



6. Pull latch handle (14) open on latches (15 and 16).
7. **Close platform (1).**
8. Push in handle (14) to **lock latches (15 and 16).**
9. Tighten captive screw (17) on two latches (15 and 16).



INSPECT

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-292.1 INSTALL COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) 2-292.1

INITIAL SETUP

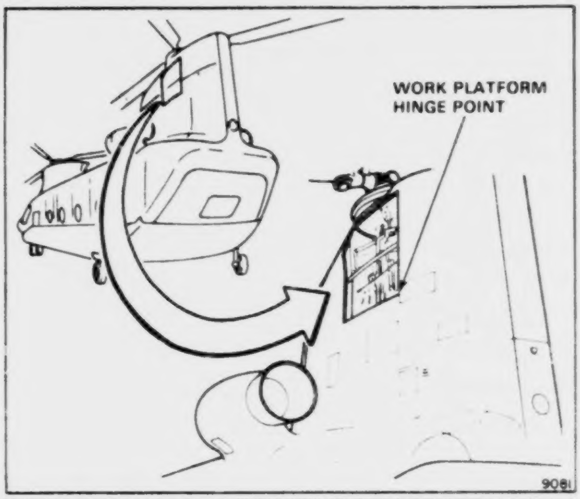
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Workstand

Materials:
Cotter Pin
Lockwire (E231)

Personnel Required:
Medium Helicopter Repairer (2)
Inspector

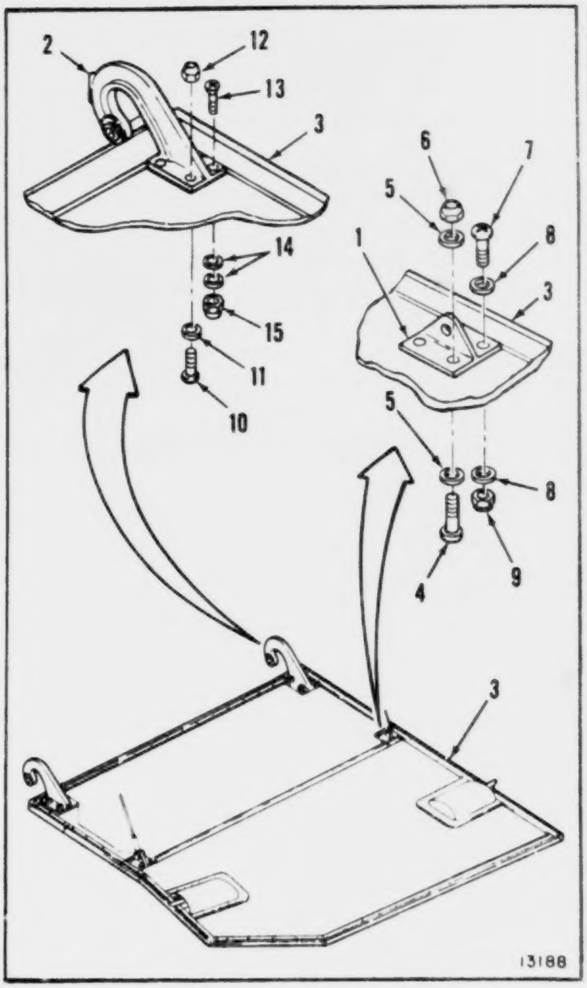
References:
TM 55-1520-240-23P



NOTE

Procedure is same to install platform brackets and hinge fittings on left and right platforms. Left platform is shown here.

1. If removed, install platform brackets (1) and hinge fittings (2) on work platform (3).
2. **Position platform brackets (1)** on inside surface of work platform (3) and **install bolts (4)** with one washer (5) **from outside surface of work platform** through platform brackets (1). Install second washer (5) and secure with nut (6).
3. **Install bolts (7)** with one washer (8) **from inside surface of work platform (3)** through platform bracket (1). Install second washer (8) and secure with nut (9).
4. **Position hinge fitting (2)** on inside surface of work platform (3) and **install bolts (10)** and washer (11) **from outside surface of work platform (3)** through hinge fitting (2) and secure with nut (12).
5. **Install bolts (13) from inside surface of work platform (3)** through hinge fitting (2). Install washers (14) and secure with nut (15).



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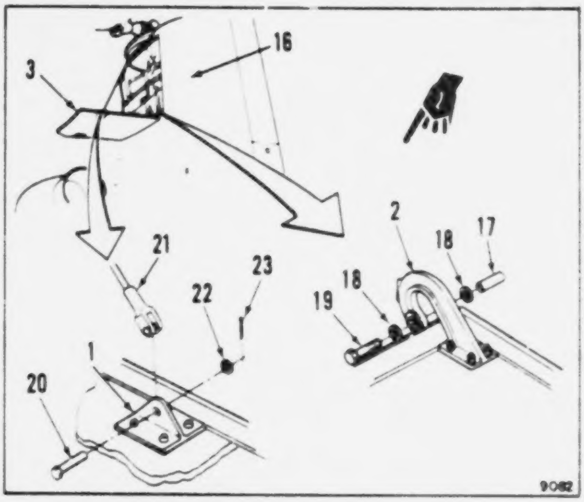
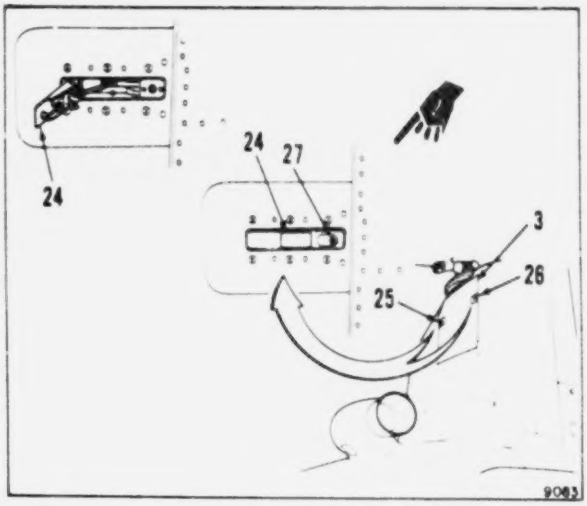
2-292.1 INSTALL COMPOSITE PYLON HINGED FAIRING (WORK PLATFORM) (Continued) 2-292.1

NOTE

Procedure is same to install left and right work platform. Installation of left platform is shown here.



6. **Position work platform (3)** on pylon (16). Have helper support platform.
7. **Install bushing (17),** washers (18), **and bolt (19)** through hinge fitting (2) and pylon (16) on each side of platform (3).
8. Lockwire bolt (19). Use lockwire (E231).
9. Install pin (20) through bracket (1) and support cable (21) on each side of platform (3). Install washer (22) and cotter pin (23).



10. Pull latch handle (24) open on latches (25 and 26).
11. **Close platform (3).**
12. Push in handle (24) to **lock latches (25 and 26).**
13. Tighten captive screw (27) on each latch (25 and 26).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-293 REMOVE PYLON FORWARD CROWN FAIRING 2-293

INITIAL SETUP

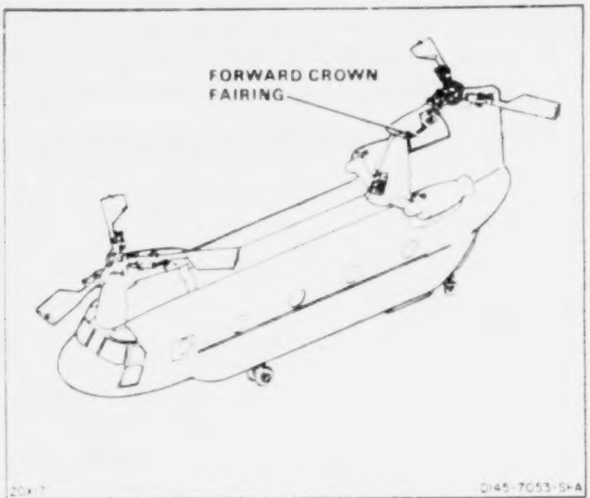
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

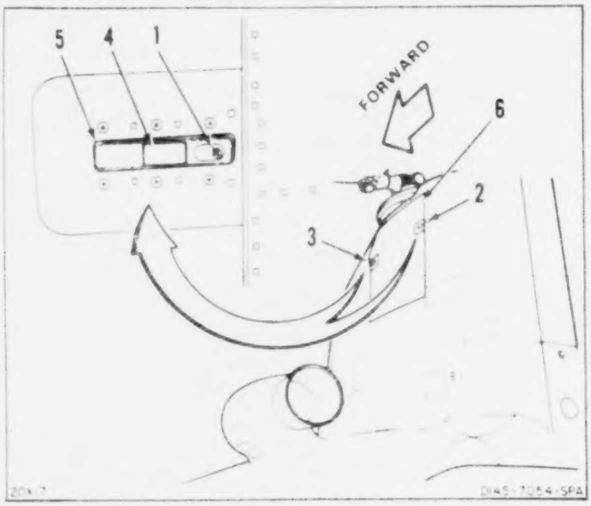
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off


FORWARD CROWN FAIRING
20x17
D145-7053-SPA

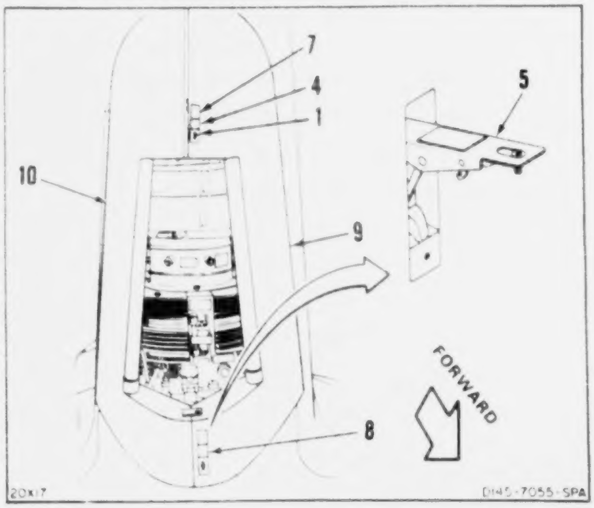
NOTE

Left and right pylon hinged fairings (work platform) must be open. Procedure is same for opening both. Opening of left hinged fairing is shown here.

1. Loosen captive screws (1) on latches (2 and 3).
2. Push in center (4) of latch handles (5) to release latches (2 and 3).
3. Pull handles (5) and **open left and right fairings (6).**


5
4
1
FORWARD
6
2
3
20x17
D145-7054-SPA

4. Loosen captive screws (1) on latches (7 and 8).
5. Push in center (4) of latch handles (5) to release latches (7 and 8).
6. **Open leading edge fairings (clamshell doors) (9 and 10).**


7
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FORWARD
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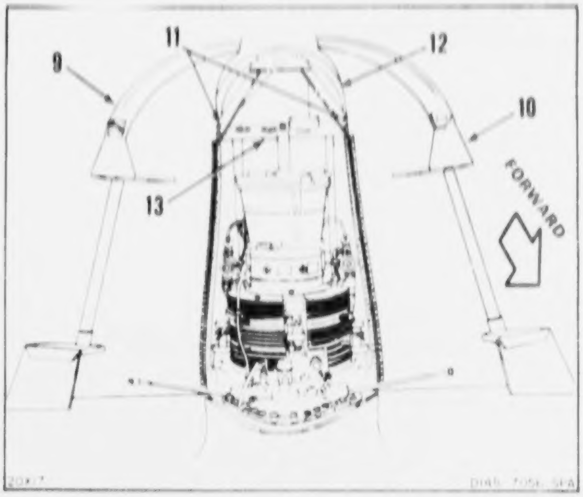
20x17
D145-7055-SPA

GO TO NEXT PAGE

2-293 REMOVE PYLON FORWARD CROWN FAIRING (Continued) 2-293

7. **Remove four screws (11)** from forward crown fairing (12) and pylon structure (13).
8. **Close fairings (9 and 10), but do not lock.**


9
11
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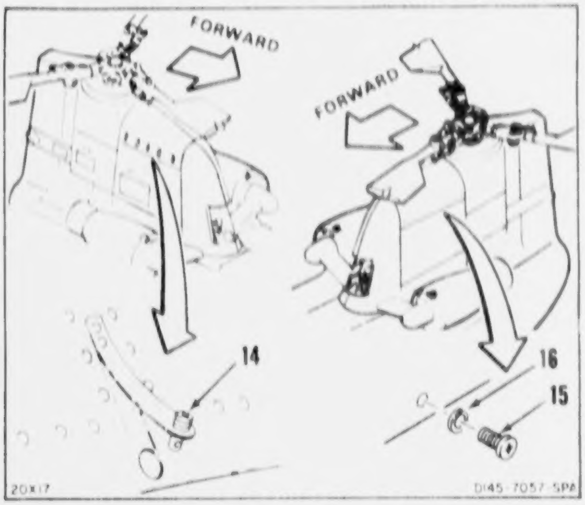
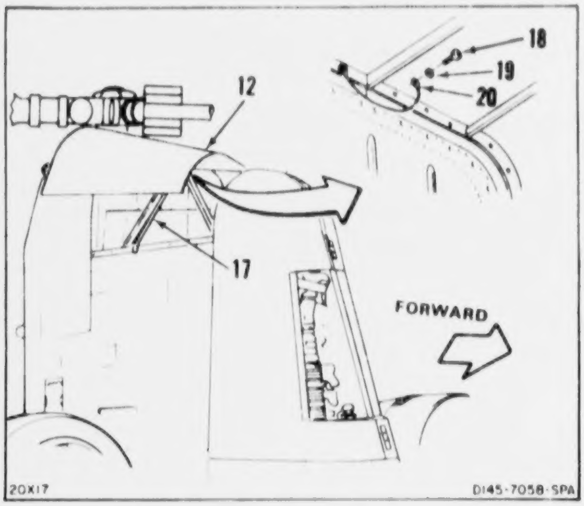
FORWARD
20X17
D145-7056-SPA

9. **Loosen five fasteners (14).**
10. **Remove 16 screws (15)** and washers (16).


FORWARD
FORWARD
14
16
15
20X17
D145-7057-SPA

11. Open hinged half of crown fairing (12) and position support (17) on fairing.
12. Remove screw (18) and washer (19), to **disconnect electrical lead (20).**


18
19
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12
17
FORWARD
20X17
D145-7058-SPA

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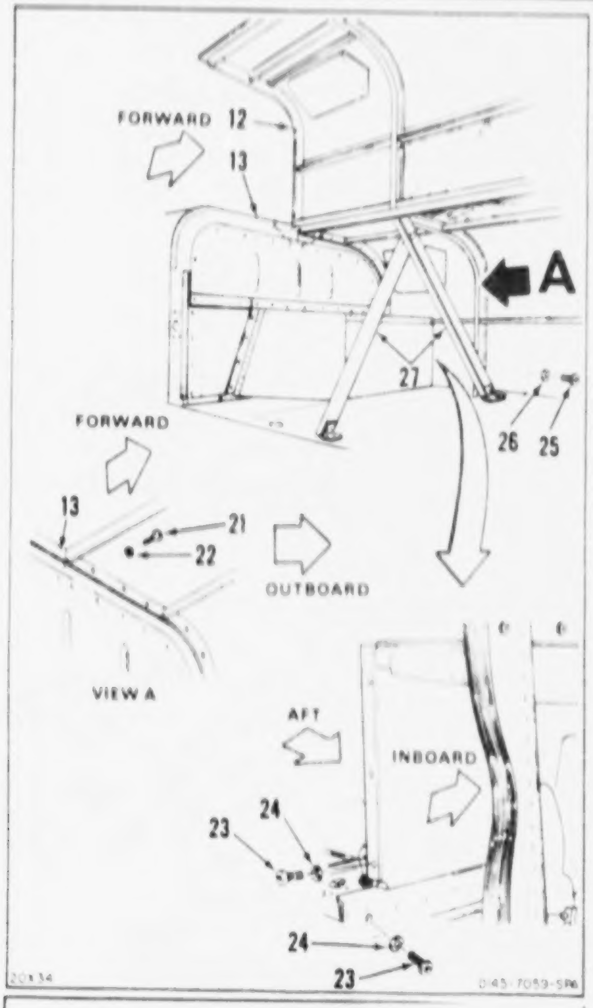
2-293 REMOVE PYLON FORWARD CROWN FAIRING (Continued) 2-293

13 **Remove six screws (21)** and washers (22) from aft end of crown fairing (12) and pylon (13).

14 **Remove five screws (23)** and washers (24) from fairing (12) and pylon (13).

15 **Remove four screws (25)** and washers (26) from crown fairing supports (27) and pylon (13).

16 With helper, **remove fairing (12).**


FORWARD
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INBOARD
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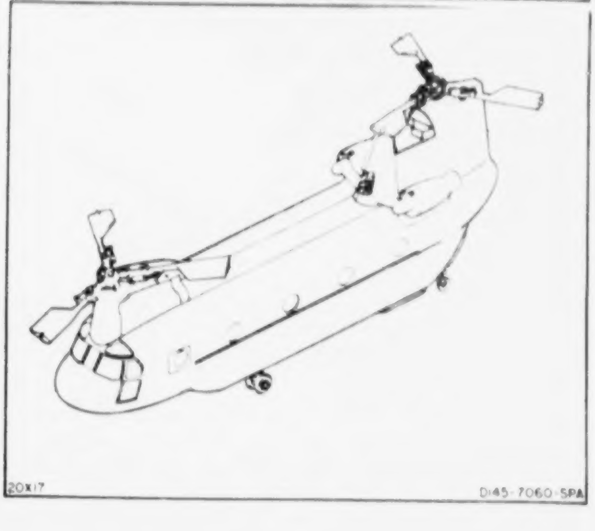
FOLLOW-ON MAINTENANCE

None


20X17
D145-7060-SPA

END OF TASK

2-294 REPAIR FORWARD CROWN FAIRING 2-294

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-13
Task 2-366

Equipment Condition:
As Required

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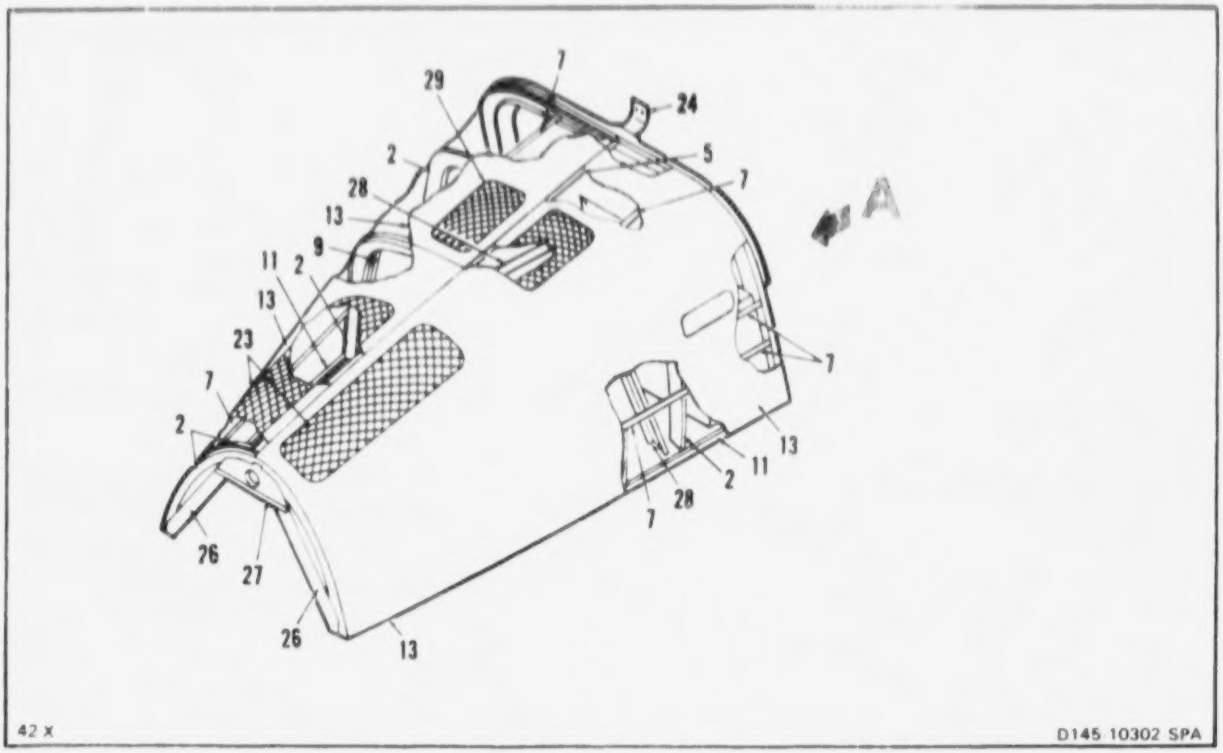
1. If damage to skin is less than 25 percent of cross section skin panel, repair by patching (Task 2-13).
2. If damage to formed part does not affect radius, repair by patching (Task 2-13).
3. Repair damage to tube sections (Task 2-366).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D145 10302 SPA

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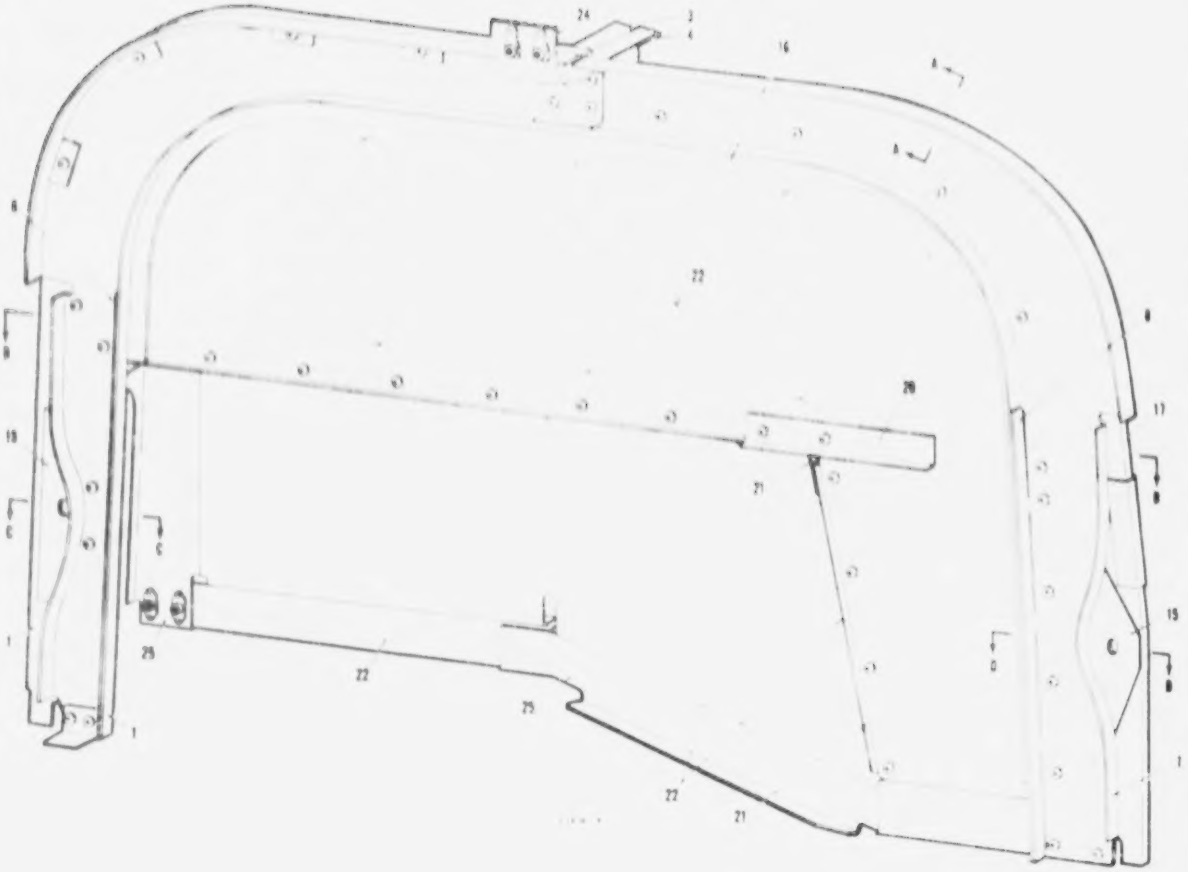
24
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A
6
22
8
B
26
17
19
C
C
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B
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25
22
25
D
B
22
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1
42 X 51
D145-10303-SPA

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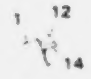
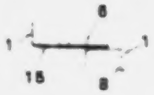
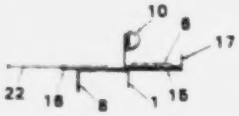
2-294 REPAIR FORWARD CROWN FAIRING (Continued) 2-294



SECTION A-A



SECTION C-C



SECTION D-D

FORWARD CROWN FAIRINGS

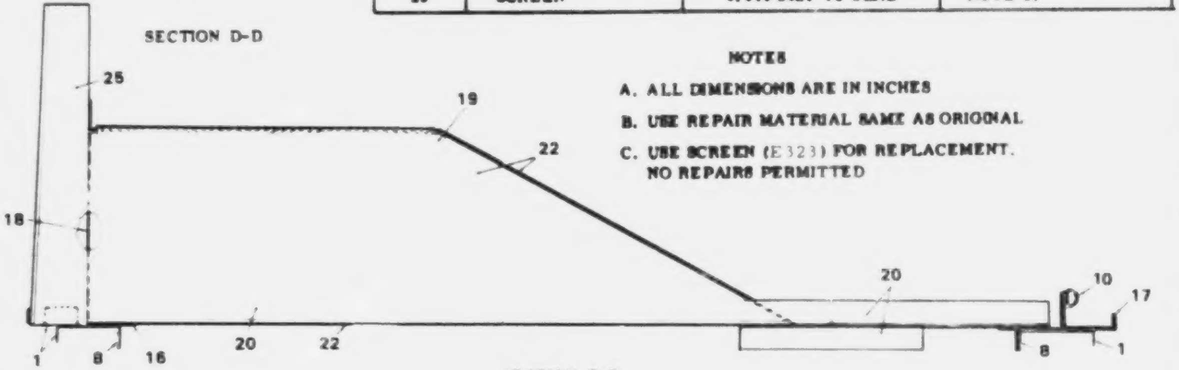
INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T42 CLAD	0.040 301 CRES ANL
	FORMER	0.025 2024-T3 CLAD	0.032 2024-T3 CLAD
2	FORMER	0.025 2024-T42 CLAD	0.025 301 CRES ANL
	FORMER	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
3	BEAM	0.032 2024-T42 CLAD	0.032 301 CRES ANL
	BEAM	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
4	BEAM	0.025 2024-T42 CLAD	0.025 301 CRES ANL
	BEAM	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
5	HINGE	MS20001PH4	NOTE B.
6	PLATE	0.125 301 CRES ANL	0.125 301 CRES ANL
7	STIFFENER	V670503-1	0.032 4130
8	STRAP	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
9	STRUT	0.035 RD SMLS TUBE 6061-T6	0.058 RD SMLS TUBE 6061-T6
10	SEAL	V880640-1	NOTE B.
11	DOUBLER	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
12	SEAL	V880518	NOTE B.
13	SKIN	0.020 2024-T4CLAD	0.025 2024-T3 CLAD
14	RETAINER	0.025 6061-T6 CLAD	0.032 4130
15	DOUBLER	0.020 301 CRES ANL	0.020 301 CRES ANL
16	DOUBLER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
17	FORMER	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
18	SEAL	0.050 SYN RUBBER	NOTE B.
19	ANGLE	BAC 1509-1420-7075-T6	0.040 4130
20	ANGLE	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD
21	ANGLE	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
22	WEB	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
23	SCREEN	0.040 2024-T4 CLAD	NOTE C.
24	SPLICE	0.025 2024-T4 CLAD	0.025 2024-T4 CLAD
25	ZEE	0.040 2024-T3 CLAD	0.050 2024-T3 CLAD
26	CHANNEL	0.050 2024-T3 CLAD	0.050 2024-T3 CLAD
27	GUSSET	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
28	CHANNEL	0.063 2024-T3 CLAD	0.063 2024-T3 CLAD
29	SCREEN	0.040 2024-T3 CLAD	NOTE C.

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. USE REPAIR MATERIAL SAME AS ORIGINAL

C. USE SCREEN (E323) FOR REPLACEMENT.
NO REPAIRS PERMITTED



SECTION B-B

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-295 INSTALL PYLON FORWARD CROWN FAIRING 2-295

INITIAL SETUP

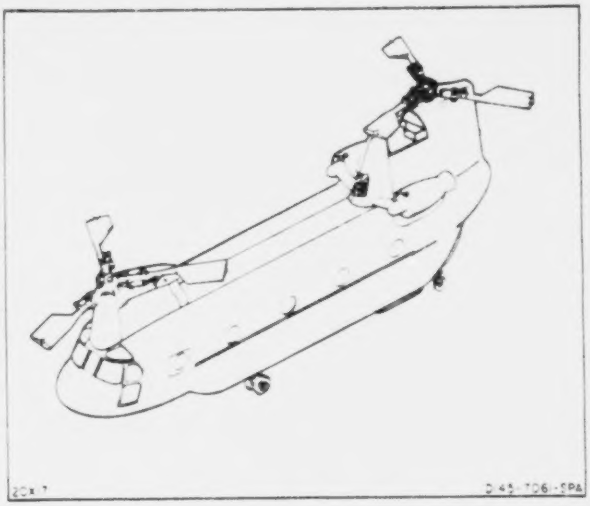
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

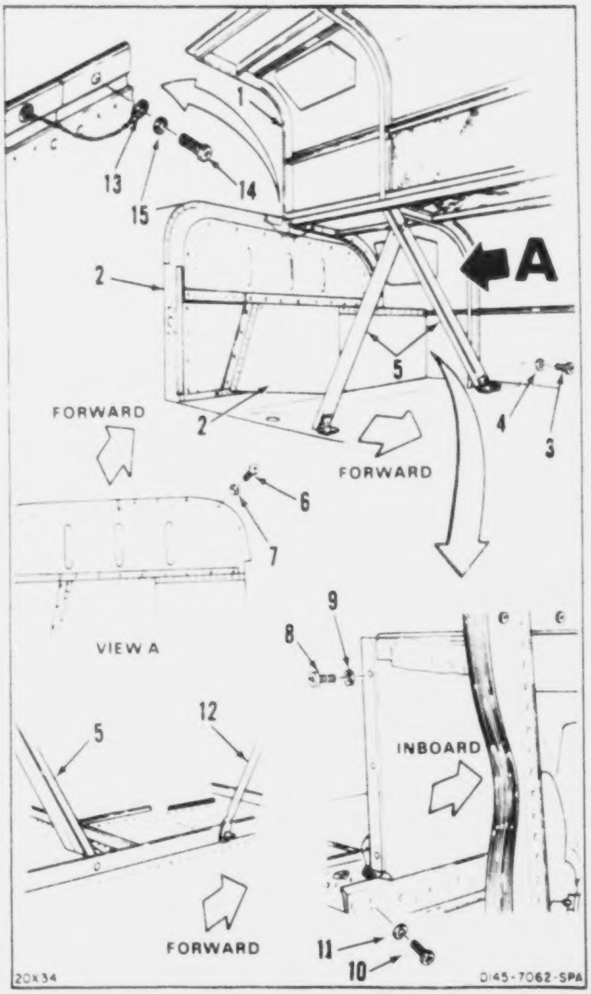
Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P


20x17
D145-7061-SPA

1. **Position forward crown fairing (1)** on pylon structure (2). Have helper support hinged (right) side of fairing (1) in raised position.
2. **Install four screws (3)** and washers (4) in fairing supports (5) and pylon (2).
3. **Install six screws (6)** and washers (7) in aft end of fairing (1) and pylon (2).
4. **Install three screws (8)** and washers (9) in fairing (1) and pylon structure (2). **Install two screws (10)** and washers (11) in fairing (1) and pylon (2).
5. Position support (12) on hinged side of fairing (1) to fairing structure.
6. **Connect electrical lead (13)** to fairing (1) by installing screw (14), and washer (15).


1
13
15
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A
5
FORWARD
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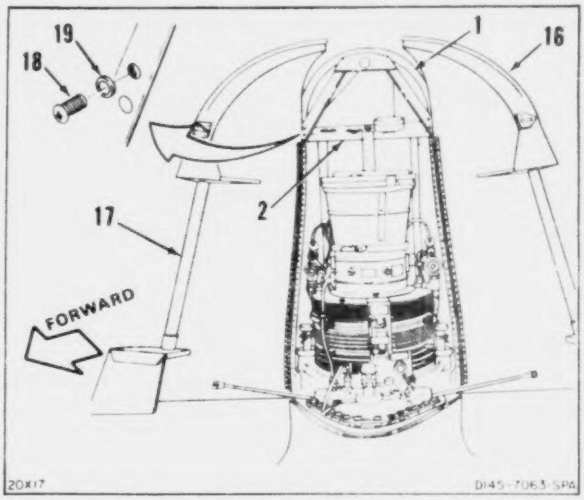
4
3
FORWARD
6
7
VIEW A
9
8
5
12
INBOARD
FORWARD
11
10
20x34
D145-7062-SPA

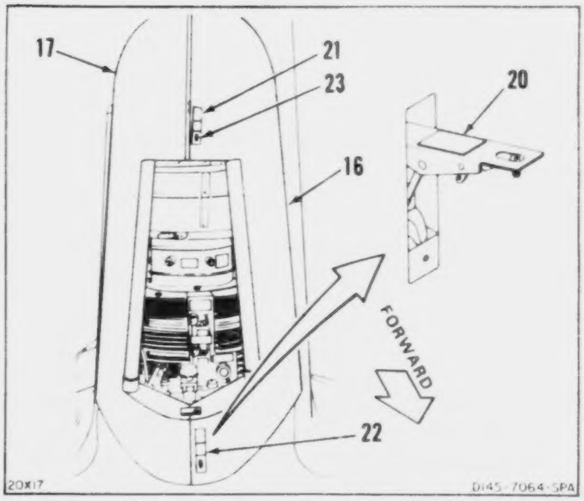
GO TO NEXT PAGE

2-295 INSTALL PYLON FORWARD CROWN FAIRING (Continued) 2-295

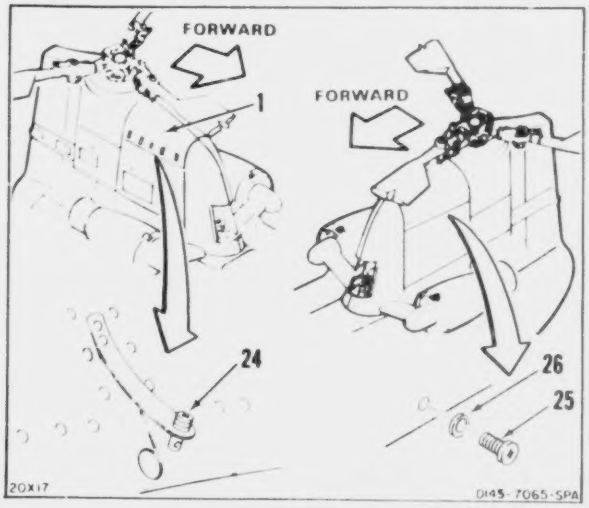
7. **Open leading edge fairings (clamshell doors) (16 and 17).**
8. **Install four screws (18)** and washers (19) in forward end of fairing (1) and pylon (2).


19
18
1
16
2
17
FORWARD
20x17
D145-7063-SPA

9. **Close fairings (16 and 17).**
10. Close two handles (20) on latches (21 and 22) to **lock latches.**
11. Tighten captive screws (23) on latches (21 and 22).

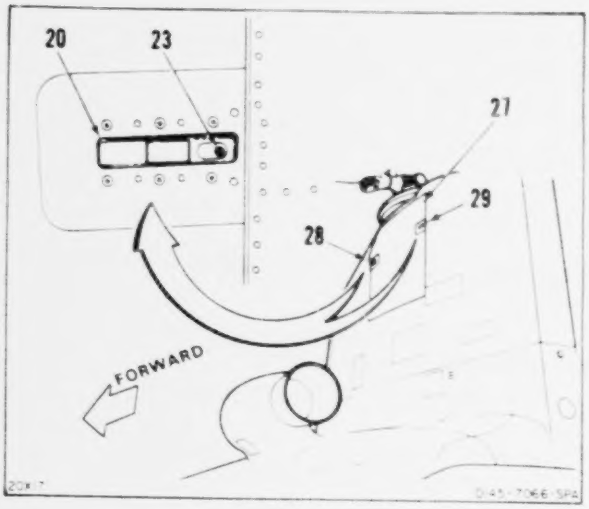

17
21
23
20
16
FORWARD
22
20x17
D145-7064-SPA

12. **Lower hinged (right) side of fairing (1) to closed position.**
13. **Tighten five fasteners (24).**
14. **Install 16 screws (25)** and washers (26) on left side of fairing (1).


FORWARD
1
FORWARD
24
26
25
20x17
D145-7065-SPA

GO TO NEXT PAGE

2-295 INSTALL PYLON FORWARD CROWN FAIRING (Continued) 2-295



NOTE

Procedure is same for closing pylon left and right hinged fairings (work platforms). Closing of left hinged fairing is shown here.

15. **Close left and right fairings (27).**
16. Close handles (20) on latches (28 and 29) to **close latches.**
17. Tighten captive screw (23) on latches (28 and 29).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-296 REMOVE AFT PYLON MID-CROWN FAIRING 2-296

INITIAL SETUP

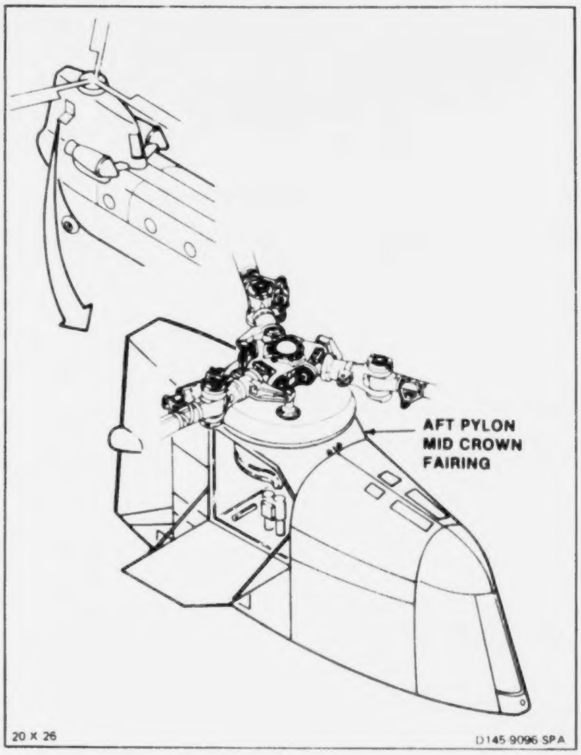
Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit.
NSN 5180-00-323-4692

Materials:
None

Personnel Required:
67U10 Medium Helicopter Repairer (2)

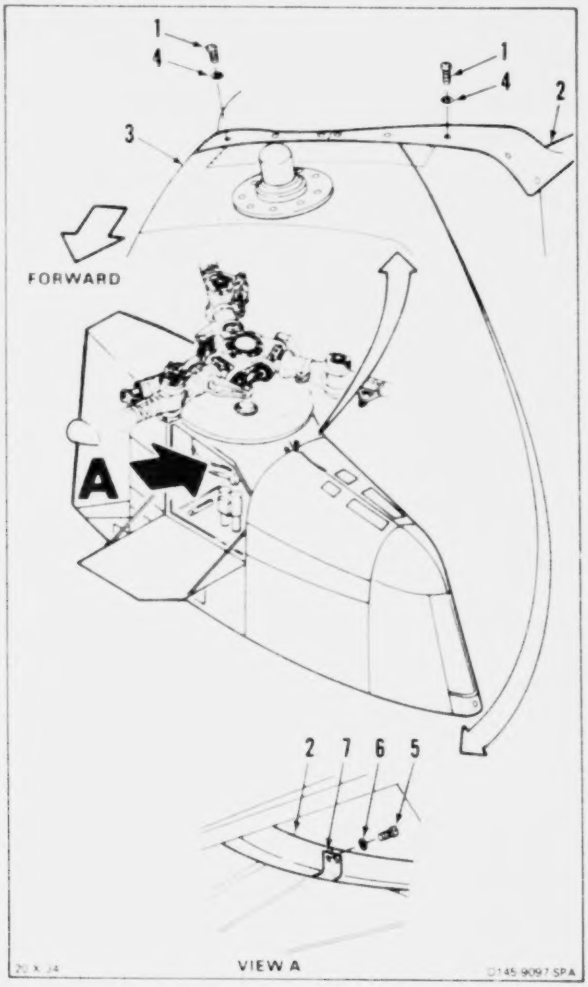
Equipment Condition:
Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
Left and Right Aft Pylon Fairings (Work Platforms) Opened (Task 2-2)


AFT PYLON MID CROWN FAIRING
20 X 26
D145-9096 SPA

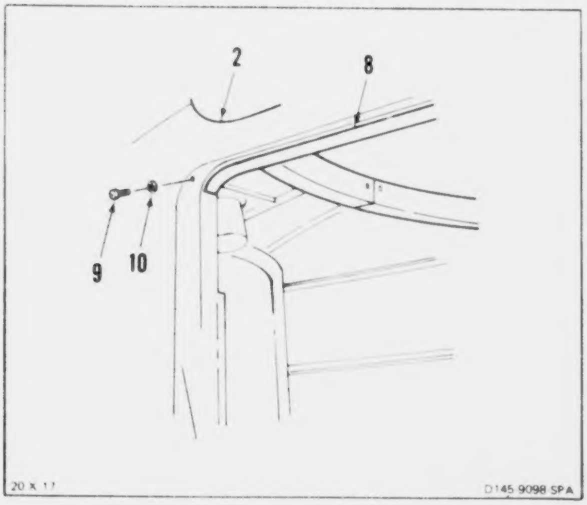
GO TO NEXT PAGE

2-296 REMOVE AFT PYLON MID-CROWN FAIRING (Continued) 2-296

1. With aid of helper, **remove** sealant from **14 screws (1)** securing mid-crown fairing (2) to aft crown fairing (3). Remove 18 screws, and washers (4).
2. **Remove two screws (5),** washers (6) **and plate (7)** from fairing (2).


1
4
1
4
2
3
FORWARD
A
2
7
6
5
20 X 34
VIEW A
D145-9097 SPA

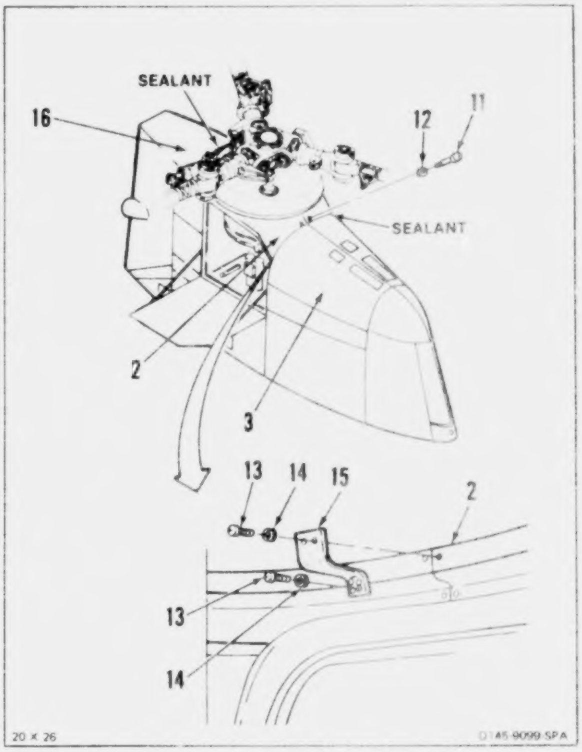
3. Roll up seal (8) and **remove screw (9)** and washer (10) from each half of fairing (2).


2
8
9
10
20 X 11
D145-9098 SPA

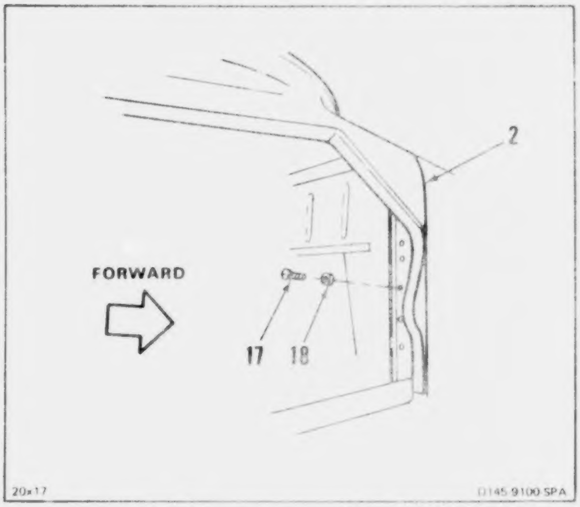
GO TO NEXT PAGE

2-296 REMOVE AFT PYLON MID-CROWN FAIRING (Continued) 2-296

4. **Remove** sealant from **two screws (11).** Remove two screws and washers (12).
5. **Remove six screws (13),** washers (14) **and plate (15)** from fairing (2).
6. Remove sealant between mid-crown fairing (2) and forward and aft crown fairings (3 and 16).


SEALANT
16
12
11
SEALANT
2
3
13
14
15
2
13
14
20 × 26
D145-9099 SPA

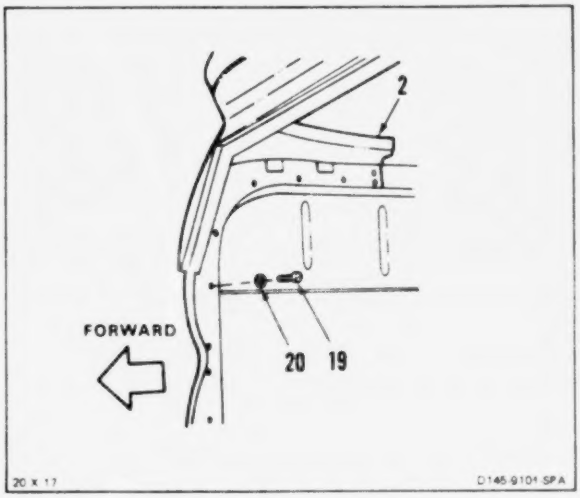
7. Have helper **remove 11 screws (17),** washers (18) **and right half of fairing (2).**


2
FORWARD
17
18
20×17
D145-9100 SPA

GO TO NEXT PAGE

2-296 REMOVE AFT PYLON MID-CROWN FAIRING (Continued) 2-296

8. **Remove 14 screws (19),** washers (20) **and left half of fairing (2).**


2
FORWARD
20
19
20 X 17
D146-9101-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-297 REPAIR MIDCROWN FAIRING 2-297

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

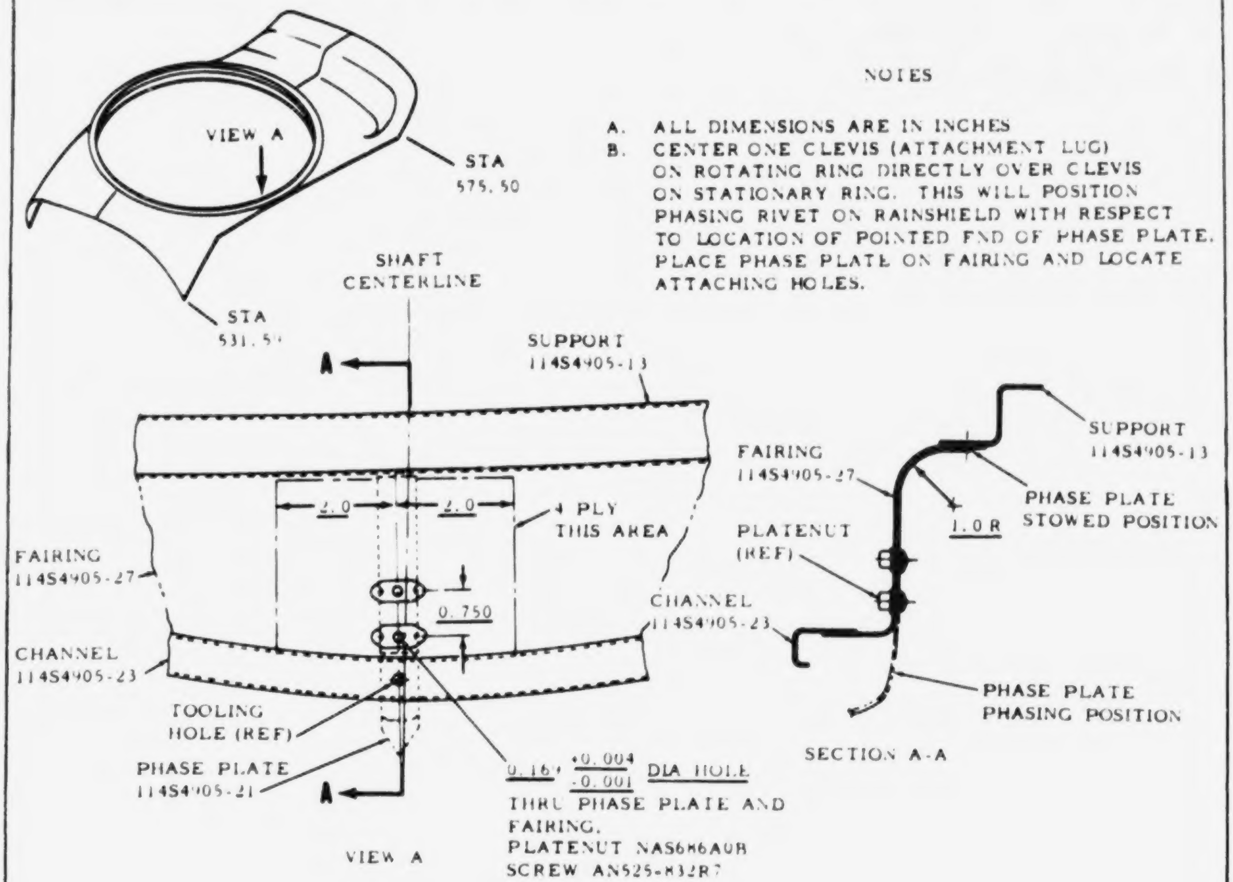
Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-13

Equipment Condition:
As Required

---

1. If damage to formed part does not affect radius, repair by patching (Task 2-13).
2. Repair damage to impregnated glass cloth laminated skin that require simple procedures. Repair must not place restrictions on flight.


VIEW A
STA 575.50
STA 531.50
SHAFT CENTERLINE
A
SUPPORT 114S4905-13
2.0
2.0
4 PLY THIS AREA
FAIRING 114S4905-27
0.750
CHANNEL 114S4905-23
CHANNEL 114S4905-23
TOOLING HOLE (REF)
PHASE PLATE 114S4905-21
A
VIEW A
SUPPORT 114S4905-13
FAIRING 114S4905-27
PHASE PLATE STOWED POSITION
1.0 R
PLATENUT (REF)
CHANNEL 114S4905-23
PHASE PLATE PHASING POSITION
SECTION A-A

NOTES

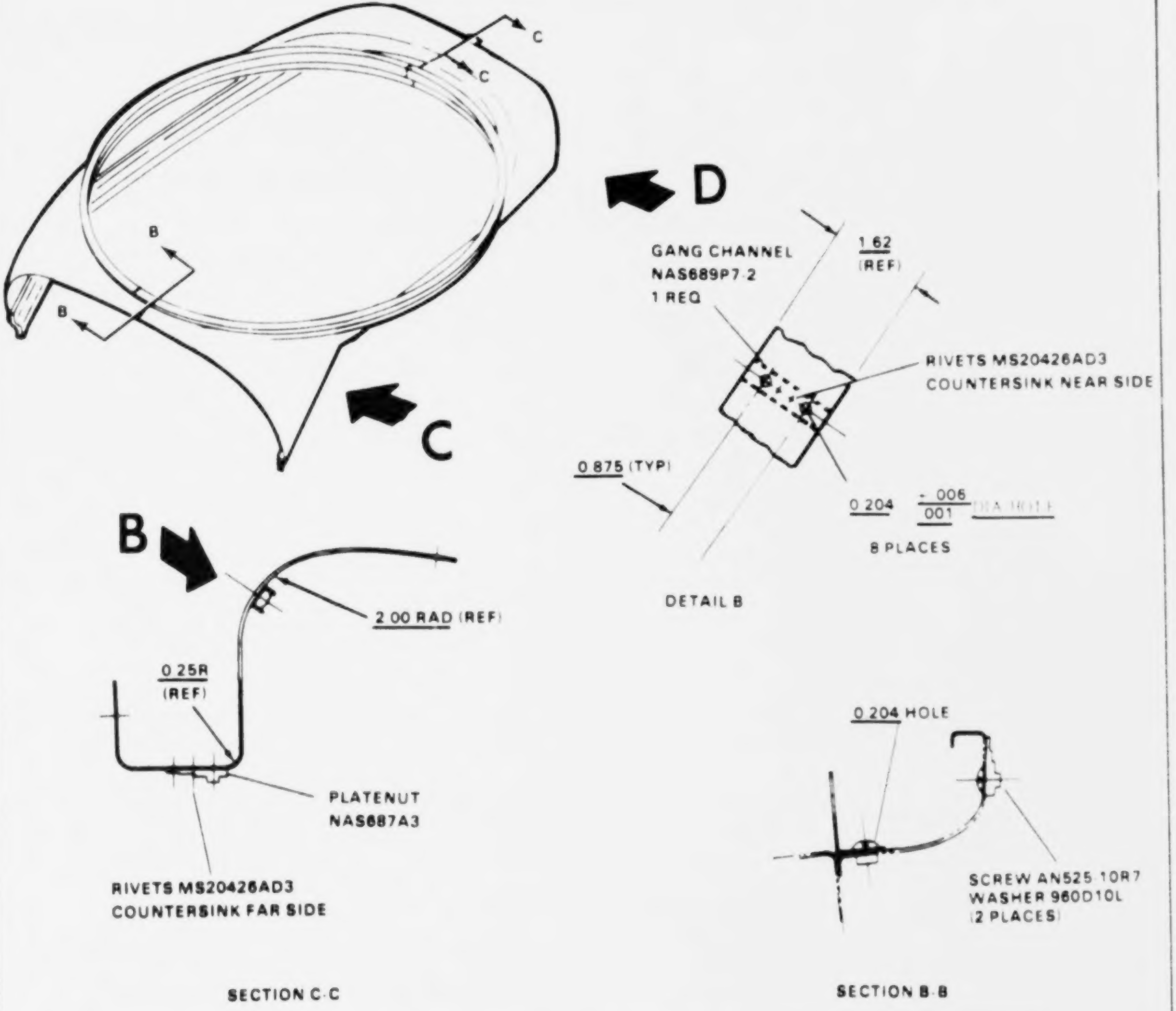
A. ALL DIMENSIONS ARE IN INCHES
B. CENTER ONE CLEVIS (ATTACHMENT LUG) ON ROTATING RING DIRECTLY OVER CLEVIS ON STATIONARY RING. THIS WILL POSITION PHASING RIVET ON RAINSHIELD WITH RESPECT TO LOCATION OF POINTED END OF PHASE PLATE. PLACE PHASE PLATE ON FAIRING AND LOCATE ATTACHING HOLES.

$\underline{0.164}\ \frac{+0.004}{-0.001}$ DIA HOLE
THRU PHASE PLATE AND FAIRING.
PLATENUT NAS686A08
SCREW AN525-832R7
WASHER AN960D8L
2 PLACES. REFER TO NOTE B.

42 X D145-10305-SPA

GO TO NEXT PAGE

2-297 REPAIR MIDCROWN FAIRING (Continued) 2-297


C
C
D
B
B
C
GANG CHANNEL
NAS689P7-2
1 REQ
1.62
(REF)
RIVETS MS20426AD3
COUNTERSINK NEAR SIDE
0.875 (TYP)
0.204 -.006/.001 DIA HOLE
8 PLACES
DETAIL B
B
2.00 RAD (REF)
0.25R
(REF)
PLATENUT
NAS687A3
RIVETS MS20426AD3
COUNTERSINK FAR SIDE
0.204 HOLE
SCREW AN525-10R7
WASHER 960D10L
(2 PLACES)
SECTION C-C
SECTION B-B

NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
SUPPORT	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
CHANNEL	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
SPLICE PLATE	0.025 2024-T4 CLAD	0.025 2024-T4 CLAD
GANG CHANNEL	NAS689P7-2	NAS689P7
FAIRING	2 PLY, NO. 181 GLASS CLOTH	

NOTES

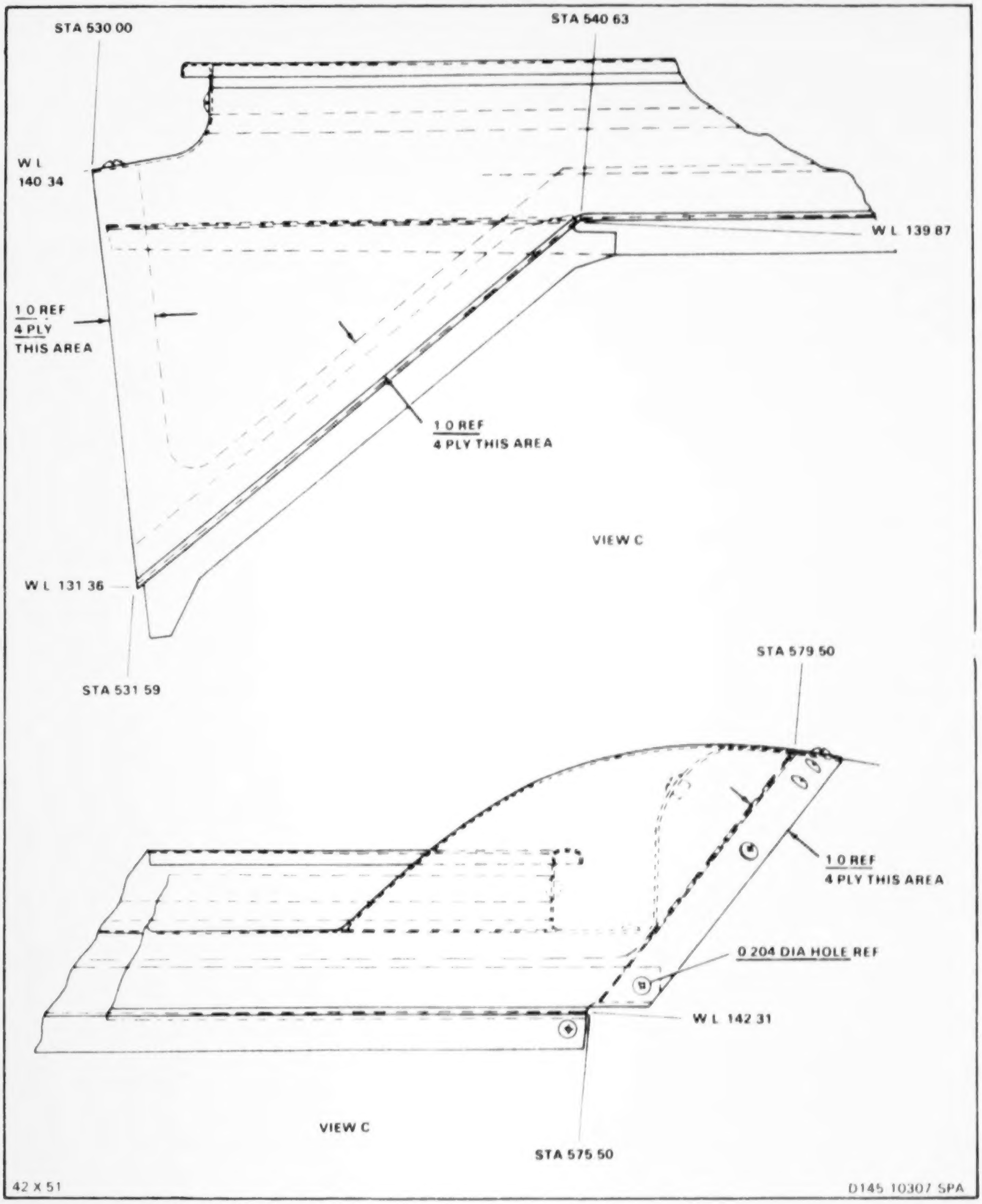
A. ALL DIMENSIONS ARE IN INCHES
B. REFER TO TM 55-1500-204-25/1 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS

42 X 51

D145-10306-SPA

GO TO NEXT PAGE

2-297 REPAIR MIDCROWN FAIRING (Continued) 2-297


STA 530 00
STA 540 63
W L
140 34
W L 139 87
1 0 REF
4 PLY
THIS AREA
1 0 REF
4 PLY THIS AREA
VIEW C
W L 131 36
STA 531 59
STA 579 50
1 0 REF
4 PLY THIS AREA
0 204 DIA HOLE REF
W L 142 31
VIEW C
STA 575 50
42 X 51
D145 10307 SPA

FOLLOW-ON MAINTENANCE

As Required

END OF TASK

2-298 INSTALL AFT PYLON MID-CROWN FAIRING 2-298

INITIAL SETUP

Applicable Configurations:
All

Tools:
Aircraft Mechanic's Tool Kit,
NSN 5180-00-323-4692

Materials:
Gloves (E186)
Sealant (E339)
Cloths (E120)
Dry Cleaning Solvent (E162)

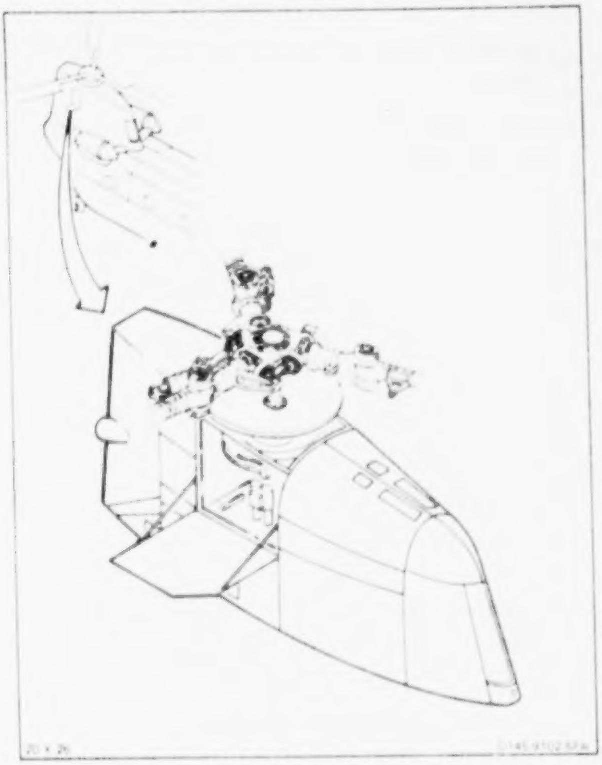
Personnel Required:
67U10 Medium Helicopter Repairer (2)
67U30 Inspector

References:
TM 55-1520-240-23P

General Safety Instructions:

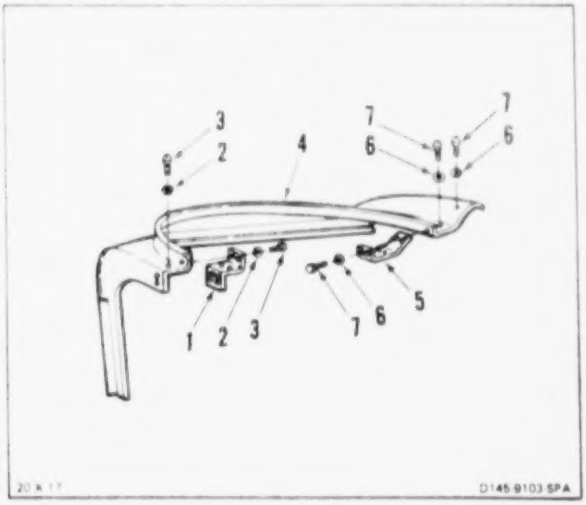
WARNING

Sealant (E339) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



---

1. **Install forward plate (1), washers (2) and two screws (3) on right half of aft mid-crown-fairing (4).**
2. **Install aft plate (5), washers (6) and three screws (7) on right half of fairing (4).**

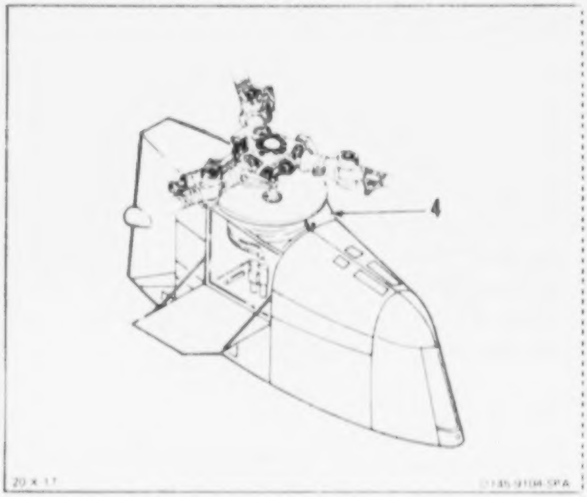


GO TO NEXT PAGE

2-298 INSTALL AFT PYLON MID-CROWN FAIRING (Continued) 2-298

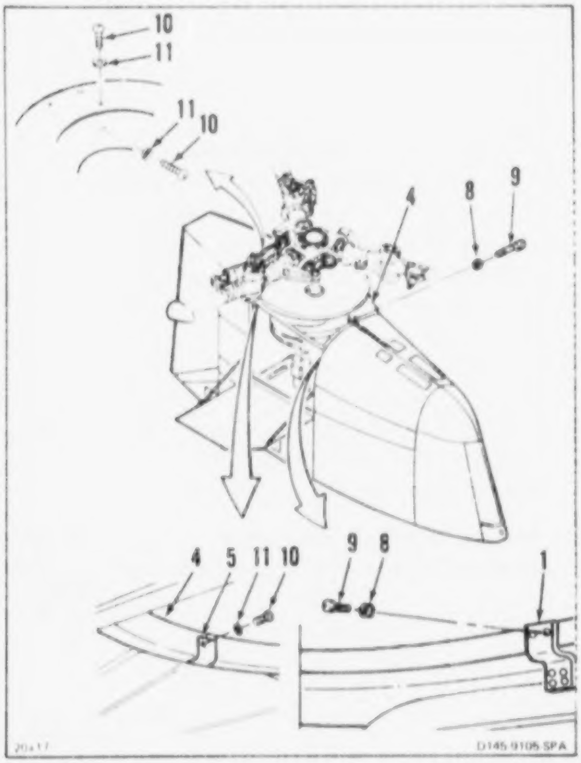
3 **Position right half of fairing (4) on aft pylon.**

4 Have helper **position left half of fairing (4) on aft pylon.**


4
20 X 11
D145 9104 SPA

5 **Install** washers (8) and **two screws (9) in forward plate (1) and left half of fairing (4).**

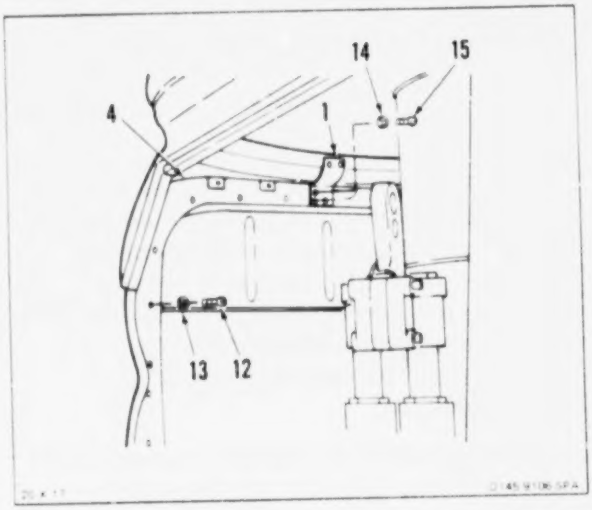
6 **Install three screws (10),** and washers (11) **in aft plate (5)** and **left half of fairing (4).**


10
11
11
10
4
8
9
4
5
11
10
9
8
1
20x11
D145 9105 SPA

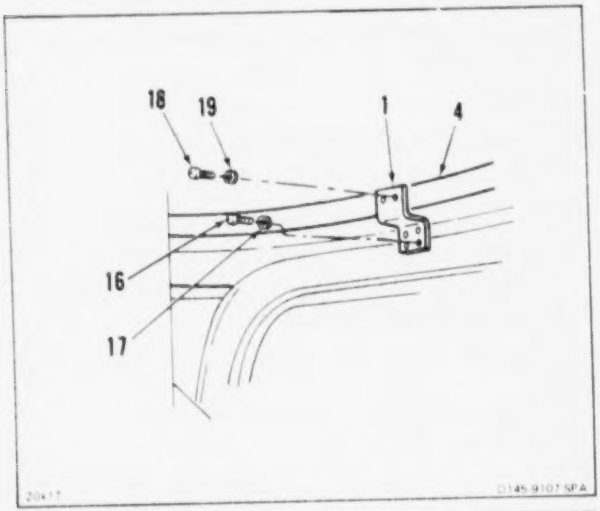
GO TO NEXT PAGE

2-298 INSTALL AFT PYLON MID-CROWN FAIRING (Continued) 2-298

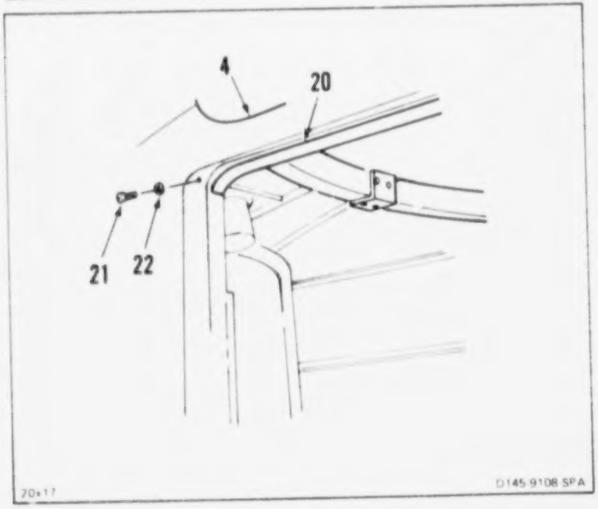
7. Have helper **install 18 screws (12)** and washers (13) **in left half of fairing (4).**
8. **Install two screws (14)** and washers (15) in plate (1).


14
15
4
1
13
12
20 × 17
D145 9106 SPA

9. **Install 14 screws (16)** and washers (17) **in right half of fairing (4).**
10. **Install two screws (18)** and washers (19) in plate (1).


18
19
1
4
16
17
20x17
D145 9107 SPA

11. Roll up seal (20) and **install screw (21)** and washer (22) **in each half of fairing (4).**


4
20
21
22
20x17
D145 9108 SPA

GO TO NEXT PAGE

2-298 INSTALL AFT PYLON MID-CROWN FAIRING (Continued) 2-298

12. **Install five screws (23)** and washers (24) **in each half of fairing (4).**

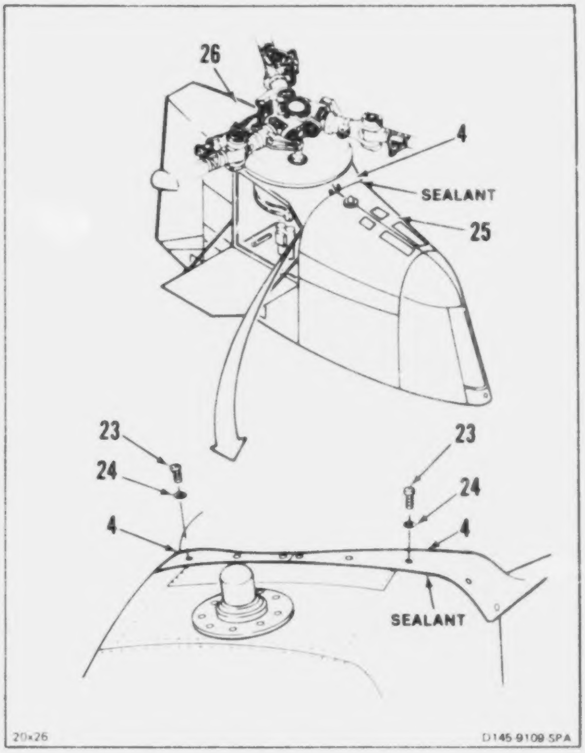
WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

13. **Wearing gloves (E186) clean all external screw heads** on fairing (4). **Clean joints between mid-crown fairing (4) and forward and aft fairings (25 and 26).** Use cloths (E120) and dry cleaning solvent (E162).

14. **Wearing gloves (E186) apply sealant (E339) to all external screw heads.**

15. **Wearing gloves (E186) apply sealant (E339) to joints between mid-crown fairing (4) and forward crown fairing (25) and aft crown fairing (26).**



FOLLOW-ON MAINTENANCE:

Close left and right aft pylon fairings (work platforms) (Task 2-2).

END OF TASK

2-299 REPAIR AFT CROWN FAIRING

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

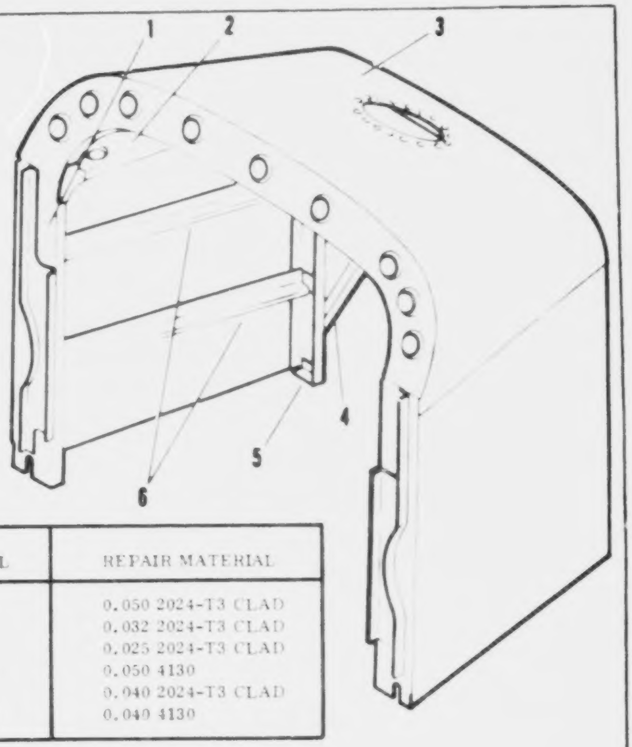
Materials:
As required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-13

Equipment Condition:
As Required

1. If damage to skin is less than 25 percent of cross section of skin panel repair by patching (Task 2-13.)
2. If damage to formed bolt does not affect radius repair by patching (Task 2-13).



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	FORMER	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD
2	FORMER	0.025 2024-T4 CLAD	0.032 2024-T3 CLAD
3	SKIN	0.020 2024-T4 CLAD	0.025 2024-T3 CLAD
4	STIFFENER	ALCOA 10854 2024-T4	0.050 4130
5	FORMER	0.032 2024-T4 CLAD	0.040 2024-T3 CLAD
6	STIFFENER	BAC1517-1522 7075-T6	0.040 4130

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REFER TO TM 55-1500-204-2591 FOR CLASSIFICATION OF DAMAGE AND REPAIR OF IMPREGNATED GLASS CLOTH PARTS

42 X

D145 10308 SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-300 AFT PYLON EQUIPMENT SUPPORT — MINOR REPAIR 2-300

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-301
Task 2-360

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Minor damage is damage to fittings limited to nicks and scratches not more than 10 percent of material thickness after burnishing.
2. Damage shall clear bolts, rivets, and radii, a minimum of 3/4 inch (Task 2-301).
3. Repair damage to webs by patching if damage does not exceed 25 percent of cross section between attaching members, and clears members enough to allow proper rivet spacing.
4. If minor limits are exceeded, refer to Task 2-360 for information on oilcanning repair.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-301 REPAIR AFT PYLON EQUIPMENT SUPPORT STRUCTURE 2-301

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-300
Task 2-302

Equipment Condition:
As Required

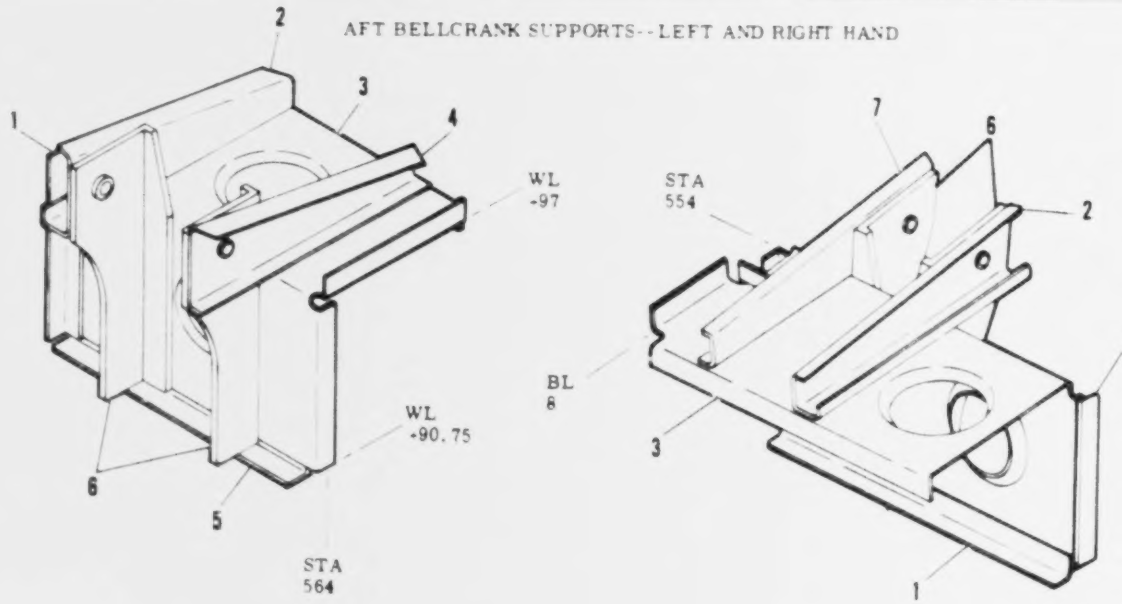
General Safety Instructions:
As Required

1. The aft pylon equipment support structures consist of the aft trunnion actuator forward and aft supports, aft swiveling actuator support, and aft bellcrank left and right supports.

2. Classification of damage is minor (Task 2-300), and repairable (AVIM) (Task 2-302).

NOTE

All dimension are in inches


AFT BELLCRANK SUPPORTS--LEFT AND RIGHT HAND

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL
1	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
2	CHANNEL	0.050 7075-T6 BARE	0.050 7075-T6 CLAD
3	SUPPORT	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
4	CHANNEL	0.040 7075-T6 BARE	0.050 7075-T6 CLAD
5	ANGLE	ALCOA 22509 7075-T6	0.050 4130
6	ANGLE	REYNOLDS 26807 7075-T6	0.125 4130
7	CHANNEL	0.032 301 CRES 1/2H	0.040 301 CRES 1/2H

NOTE

ALL DIMENSIONS ARE IN INCHES

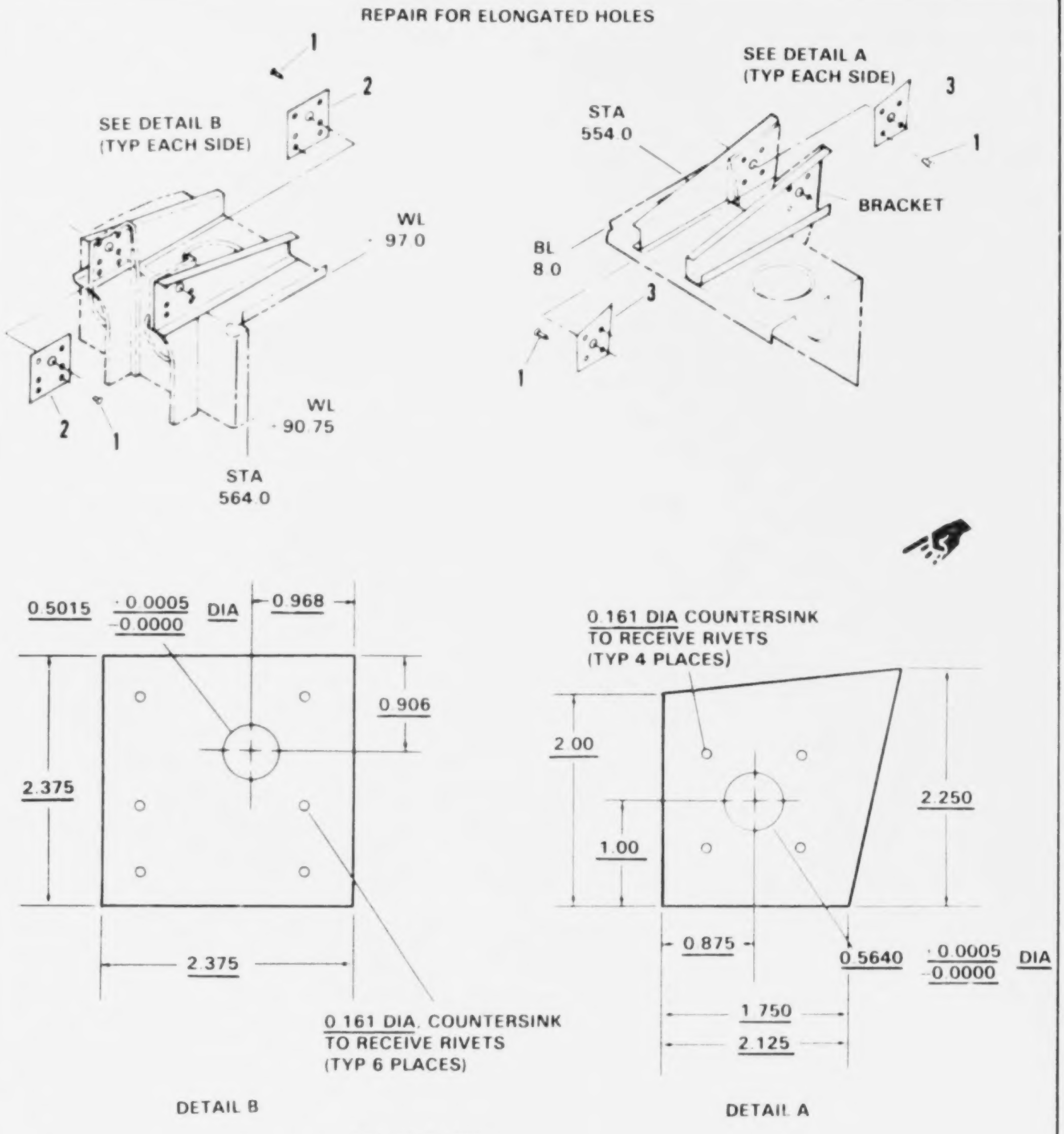
42 X

D146-10287-SPA

Aft Pylon Equipment Support Structure Repairs (Sheet 1 of 3)

GO TO NEXT PAGE

2-301 REPAIR AFT PYLON EQUIPMENT SUPPORT STRUCTURE (Continued) 2-301


REPAIR FOR ELONGATED HOLES
1
2
SEE DETAIL B (TYP EACH SIDE)
WL 97.0
WL 90.75
2
1
STA 564.0
SEE DETAIL A (TYP EACH SIDE)
3
STA 554.0
1
BRACKET
BL 8.0
3
1
0.5015 +0.0005 -0.0000 DIA
0.968
0.906
2.375
2.375
0.161 DIA. COUNTERSINK TO RECEIVE RIVETS (TYP 6 PLACES)
DETAIL B
0.161 DIA COUNTERSINK TO RECEIVE RIVETS (TYP 4 PLACES)
2.00
1.00
2.250
0.875
0.5640 +0.0005 -0.0000 DIA
1.750
2.125
DETAIL A

REPAIR PARTS

1 RIVET MS20426AD5, LENGTH AS REQUIRED
2 DOUBLER 0.020, 301 CRES 1/4 TO 1/2 HARD
3 DOUBLER 0.020, 301 CRES 1/4 TO 1/2 HARD

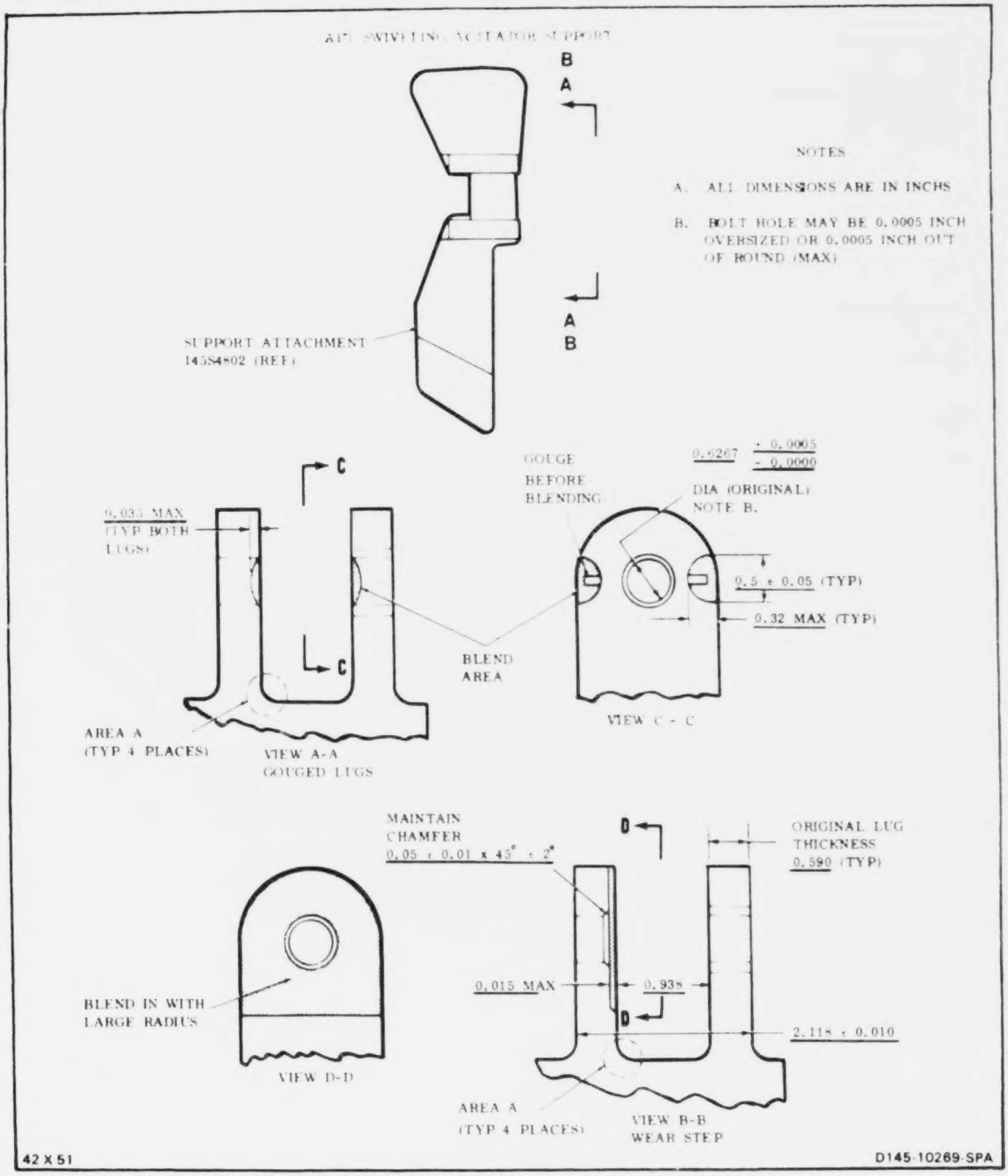
NOTE
ALL DIMENSIONS ARE IN INCHES

2529

Aft Pylon Equipment Support Structure Repairs (Sheet 2 of 3)

GO TO NEXT PAGE

2-301 REPAIR AFT PYLON EQUIPMENT SUPPORT STRUCTURE (Continued) 2-301


AFT SWIVELING ACTUATOR SUPPORT
B
A
A
B
SUPPORT ATTACHMENT
145S4802 (REF)
C
C
0.035 MAX
(TYP BOTH LUGS)
AREA A
(TYP 4 PLACES)
VIEW A-A
GOUGED LUGS
GOUGE
BEFORE
BLENDING
0.6267 + 0.0005 - 0.0000
DIA (ORIGINAL)
NOTE B.
BLEND
AREA
0.5 ± 0.05 (TYP)
0.32 MAX (TYP)
VIEW C - C
MAINTAIN
CHAMFER
0.05 ± 0.01 x 45° ± 2°
D
D
ORIGINAL LUG
THICKNESS
0.590 (TYP)
BLEND IN WITH
LARGE RADIUS
VIEW D-D
0.015 MAX
0.938
2.118 ± 0.010
AREA A
(TYP 4 PLACES)
VIEW B-B
WEAR STEP
42 X 51
D145-10269-SPA

NOTES

A. ALL DIMENSIONS ARE IN INCHS

B. BOLT HOLE MAY BE 0.0005 INCH OVERSIZED OR 0.0005 INCH OUT OF ROUND (MAX)

Aft Pylon Equipment Support Structure Repairs (Sheet 3 of 3)

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-302 REPAIR AFT PYLON EQUIPMENT SUPPORT STRUCTURE (AVIM) 2-302

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Crocus Cloth (E122)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-301
MIL-I-6866
Task 2-10

Equipment Condition:
As Required

General Safety Conditions:
As Required

1. Damage not extensive, but exceeds the limits for patching, shall be repaired by insertion (Task 2-10).
2. Repair gouges and wear steps on aft swiveling support mounts.
    a. Blend gouges within limits (Task 2-301). Use crocus cloth (E122). Remove least amount of material possible to remove and blend damage.
    b. Penetrant inspect reworked lugs for cracks in accordance with MIL-I-6866. Pay special attention to radii at base of lugs (Task 2-301) AREA A and also to the lug bore surfaces and surrounding areas.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-303 MINOR REPAIR AFT PYLON 2-303

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-7
Task 2-13
Task 2-304

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Minor damage to decks consists of nicks and scratches which can be removed by burnishing. See Task 2-7 for example of extruded part damage. See Task 2-13 for repair information to internal webs and formed parts.
2. For general information of pylon, refer to Task 2-304.
3. Repair damage affecting less than 25 percent of a web cross section and clearing boundary members (caps) by patching.
4. Repair damage affecting only a single leg of a formed part and not extending into the radius or heel by patching.

FOLLOW-ON MAINTENANCE

As required.

END OF TASK

2-304 REPAIR PYLON 2-304

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

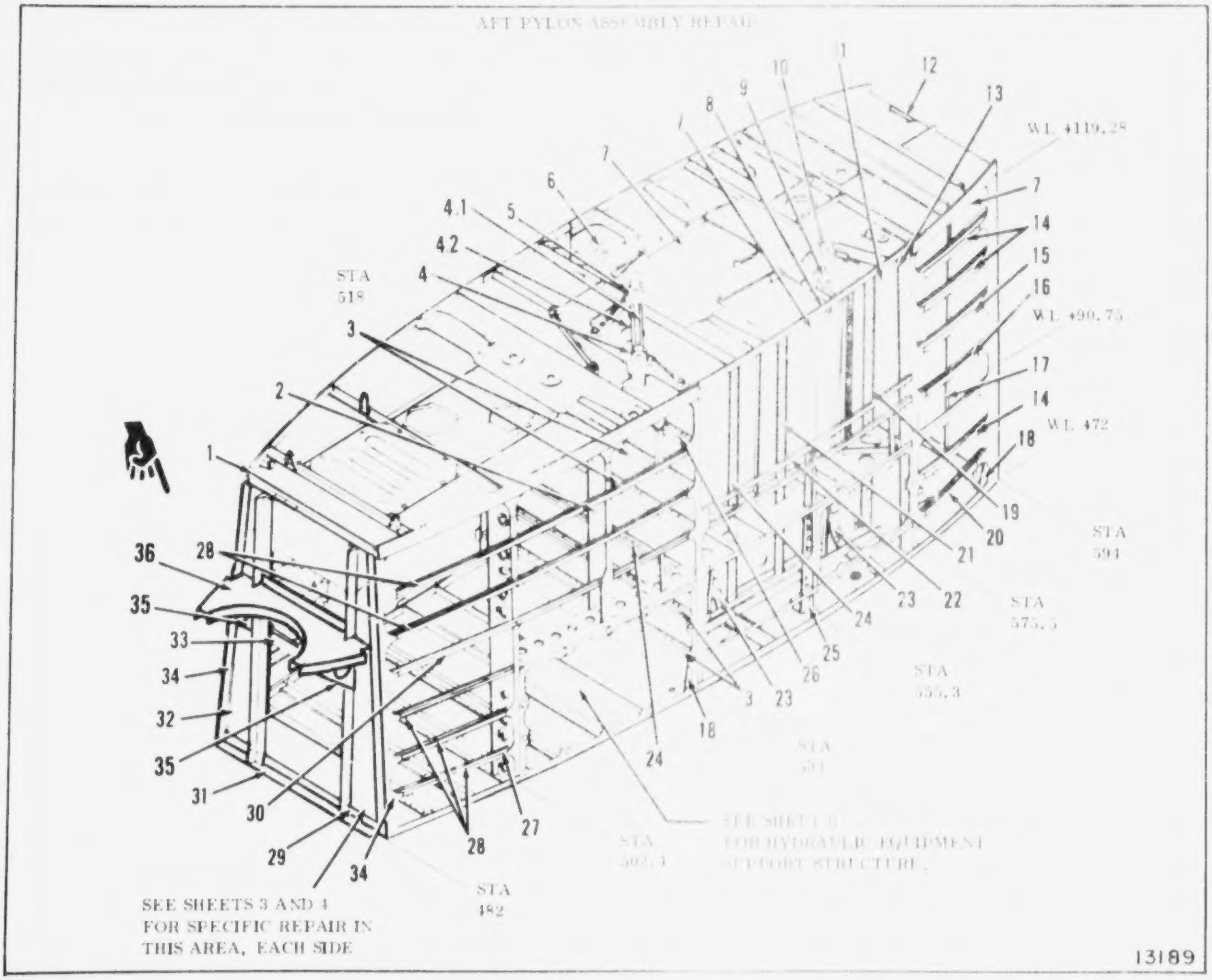
References:
Task 2-303
Task 2-305
Task 2-325
Task 2-301
Task 2-13
Task 2-351
Task 2-11

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. The pylon is spliced to the aft fuselage at wl +72 with forged aluminum attachment fittings. Three decks are in the pylon

2. Damage to pylon shall be classified as minor damage task 2-303, reparable damage (AVIM) and damage necessitating replacement task 2-305.


AFT PYLON ASSEMBLY REPAIR
1
2
3
4
4.1
4.2
5
6
7
7
8
9
10
11
12
13
WL +119.28
7
14
15
16
WL +90.75
17
14
WL +72
18
19
20
21
22
23
24
25
26
3
23
18
24
27
28
28
29
30
31
32
33
34
34
35
35
36
STA 518
STA 594
STA 575.5
STA 555.3
STA 531
STA 502.3
STA 482
SEE SHEET 8 FOR HYDRAULIC EQUIPMENT SUPPORT STRUCTURE.
SEE SHEETS 3 AND 4 FOR SPECIFIC REPAIR IN THIS AREA, EACH SIDE
13189

Aft Pylon Structure Repair (Sheet 1 of 10)

GO TO NEXT PAGE

AFT PYLON ASSEMBLY REPAIRS

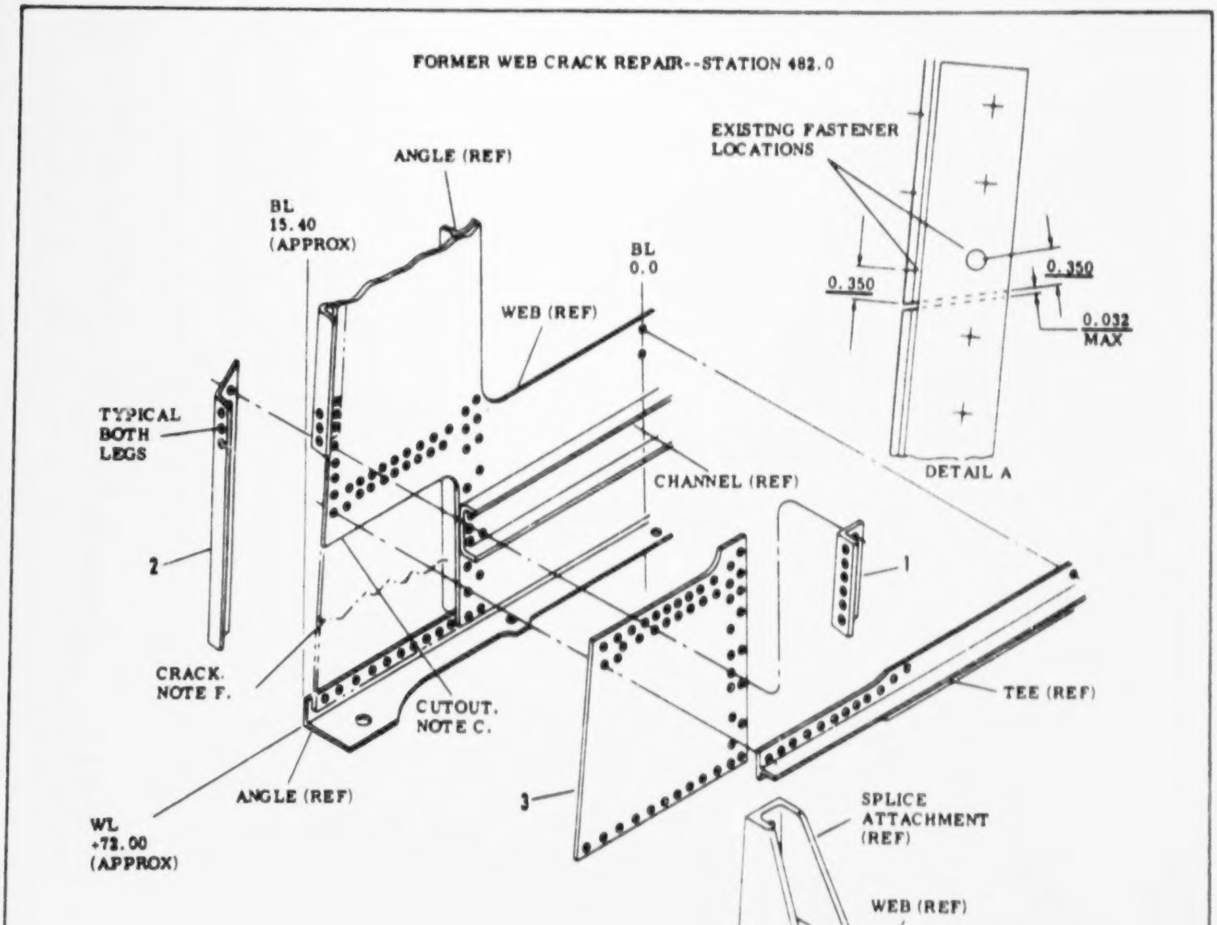
INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	CHANNEL	0.063	2024-T3 CLAD	0.063	2024-T3 CLAD	2-13
2	WEB	0.020	7075-T6 BARE	0.025	7075-T6 CLAD	2-13
3	STIFFENER	ALCOA 59675	7075-T6	0.050	4130	2-29
4	BEAM	BAC 1505-100524	2024-T4	NOTE B		NOTE J
4.1	CHANNEL	.071	2024-T4 CLAD	NOTE K		—
4.2	CHANNEL	.071	2024-T4 CLAD	NOTE L		—
5	BEAM	BAC 1505-100524	2024-T4	NOTE C		NOTE J
6	ATTACHMENT	—		NOTE D		2-301
7	WEB	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-13
8	WEB	VS90525	7075-T6	—		2-13
9	ATTACHMENT	—		NOTE E		—
10	ATTACHMENT	—		NOTE F		—
11	WEB	0.040	7075-T6 CLAD	0.050	7075-T6 CLAD	2-13
12	CAP	BAC 1514-539	7075-T6	—		NOTE J
13	ANGLE	0.050	7075-T6 CLAD	0.063	7075-T6 CLAD	NOTE J
14	STRINGER	ALCOA 83264	7075-T6	—		2-15
15	TEE	HARVEY 15152	7075-T6	—		NOTE J
16	STRINGER	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-15
17	ANGLE	0.090	7075-T6 BARE	0.100	7075-T6 CLAD	NOTE J
18	ATTACHMENT	—		NOTE G		NOTE J
19	TEE	REYNOLDS 26598	7075-T6	—		NOTE J
20	STRINGER	0.063	7075-T6 BARE	0.071	7075-T6 CLAD	2-15
21	CHANNEL	0.063 301 1/2H CRES		0.063 301 1/2H CRES		2-6
22	STRINGER	HARVEY 15078	7075-T6	0.063	4130	2-15
23	ATTACHMENT	—		NOTE H		—
24	CHANNEL	0.040	7075-T6 BARE	0.050	7075-T6 CLAD	2-13
25	FORMER	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	NOTE J
26	ANGLE	AND10133	2024-T4	—		NOTE J
27	FORMER	0.050	2024-T3 BARE	0.063	2024-T3 CLAD	NOTE J
28	STRINGER	VS70503-1	7075-T6	0.032	4130	2-15
29	ANGLE	AND10134-1201	7075-T6	0.063	4130	NOTE J
30	STRINGER	VS70503-3	7075-T6	0.050	4130	2-15
31	ANGLE	ALCOA 61971	7075-T6	0.063	4130	NOTE J
32	WEB	0.025	7075-T6 BARE	0.032	7075-T6 CLAD	2-13
33	TEE	ALCOA 49225	7075-T6	0.063	4130	NOTE J
34	HINGE HALF	MS20001H6		NOTE I		2-325
35	SUPPORT	0.040 AL ALY SHT	2024-0 CLAD	0.040 AL ALY SHT	2024-0 CLAD	NOTE J
36	PARTITION	0.032 AL ALY SHT	2024-0 CLAD	0.032 AL ALY SHT	2024-0 CLAD	NOTE J

NOTES:
A. All dimensions are in inches
B. Replace with new beam 114S4119-56 if damage is more than negligible
C. Replace with new beam 114S4119-5 if damage is more than negligible
D. Replace with new attachment 114S4836-1 if damage is not reparable
E. Replace with new attachment 114S4835-1 if damage is more than negligible
F. Replace with new attachment 114S4811-5 if damage is more than negligible
G. Replace with new attachment 114S4801-1 if damage is more than negligible
H. Replace with new attachment 114S4805-4 if damage is more than negligible. Use locating fixture 114G1247-1. Replace attachments separately to prevent mislocation
I. Refer to Task 2-325 for hinge repair
J. TM 55-1500-204-25/1
K. Replace with new channel 114S4119-45 if damage is more than negligible
L. Replace with new channel 114S4119-46 if damage is more than negligible

Aft Pylon Structure Repair (Sheet 2 of 10)

GO TO NEXT PAGE

2-304 REPAIR PYLON (Continued) 2-304


FORMER WEB CRACK REPAIR--STATION 482.0
ANGLE (REF)
BL
15.40
(APPROX)
BL
0.0
WEB (REF)
EXISTING FASTENER
LOCATIONS
0.350
0.350
0.032
MAX
DETAIL A
TYPICAL
BOTH
LEGS
2
CHANNEL (REF)
1
CRACK.
NOTE F.
CUTOUT.
NOTE C.
TEE (REF)
ANGLE (REF)
3
WL
+72.00
(APPROX)
SPLICE
ATTACHMENT
(REF)
WEB (REF)
3
(INSTALLED
UNDER WEB)
DETAIL A
COMPLETED REPAIR
42 X 51
D145-9774-SPA

REPAIR PARTS

1. SPLICE 0.050 301-1/2H CRES
2. CAP REPLACEMENT ALCOA 24761 7075-T6
3. WEB REINFORCEMENT 0.040 2024-T4 BARE

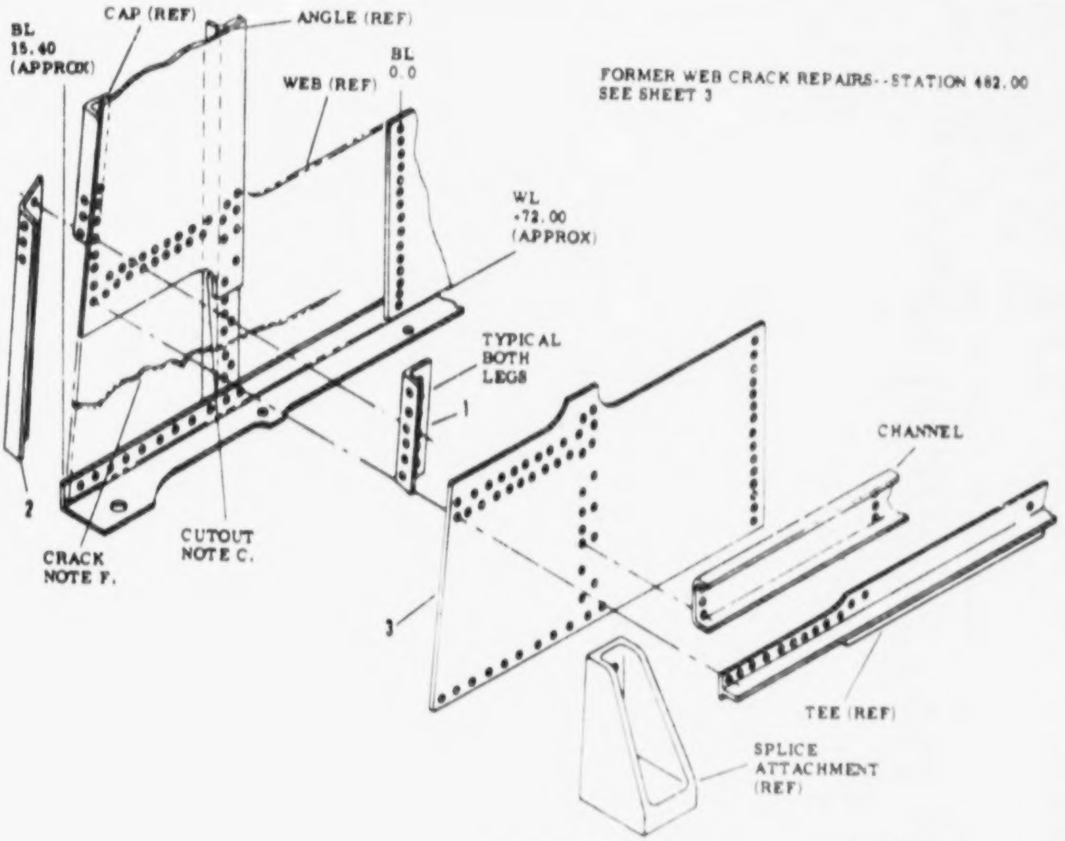
NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. INSULATE DISSIMILAR METALS. REFER TO TASK 2-351
C. DETERMINE RADIUS OF CUTOUT FROM RADIUS OF TEE PRIOR TO REMOVAL OF TEE
D. USE SAME TYPE FASTENERS AS ORIGINAL
E. REPAIR IS APPLICABLE TO EITHER SIDE OF BUTT LINE 0.0
F. SEE SHEET 4 FOR REPAIR OF CRACKS EXTENDING BEYOND THAT SHOWN

GO TO NEXT PAGE

Aft Pylon Structure Repair (Sheet 3 of 10)

2-304 REPAIR PYLON (Continued) 2-304

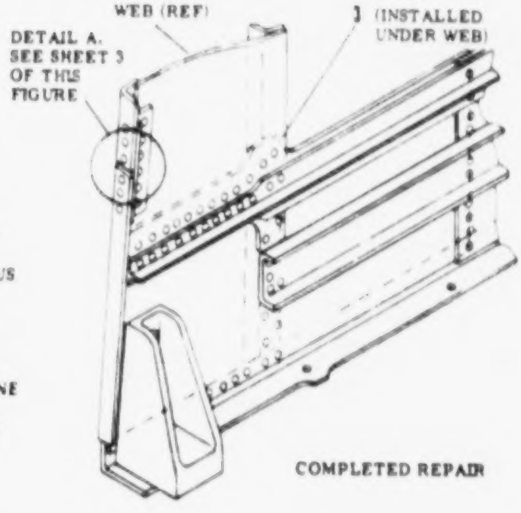

BL
15.40
(APPROX)
CAP (REF)
ANGLE (REF)
WEB (REF)
BL
0.0
FORMER WEB CRACK REPAIRS--STATION 482.00
SEE SHEET 3
WL
+72.00
(APPROX)
TYPICAL
BOTH
LEGS
1
2
CRACK
NOTE F.
CUTOUT
NOTE C.
CHANNEL
3
TEE (REF)
SPLICE
ATTACHMENT
(REF)

REPAIR PARTS

1. SPLICE 0.050 301-1/2H CRES
2. CAP REPLACEMENT ALCOA 24761 7075-T6
3. WEB REINFORCEMENT 0.040 2024-T4 BARE

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. INSULATE DISSIMILAR METALS. REFER TO TASK 2-351
C. DETERMINE RADIUS OF CUTOUT FROM RADIUS OF TEE PRIOR TO REMOVAL OF TEE
D. USE SAME TYPE FASTENERS AS ORIGINAL
E. REPAIR IS APPLICABLE TO EITHER SIDE OF BUTT LINE 0.0
F. CRACKS OCCURRING ON EACH SIDE OF THE FORMER OR EXTENDING BEYOND BUTT LINE 0.0 ON ONE SIDE CAN BE REPAIRED BY SPANNING THE ENTIRE AREA WITH A SINGLE WEB REINFORCEMENT (3)


WEB (REF)
DETAIL A.
SEE SHEET 3
OF THIS
FIGURE
3 (INSTALLED
UNDER WEB)

COMPLETED REPAIR

42 X 51

D145-9775-SPA

Aft Pylon Structure Repair (Sheet 4 of 10)

GO TO NEXT PAGE

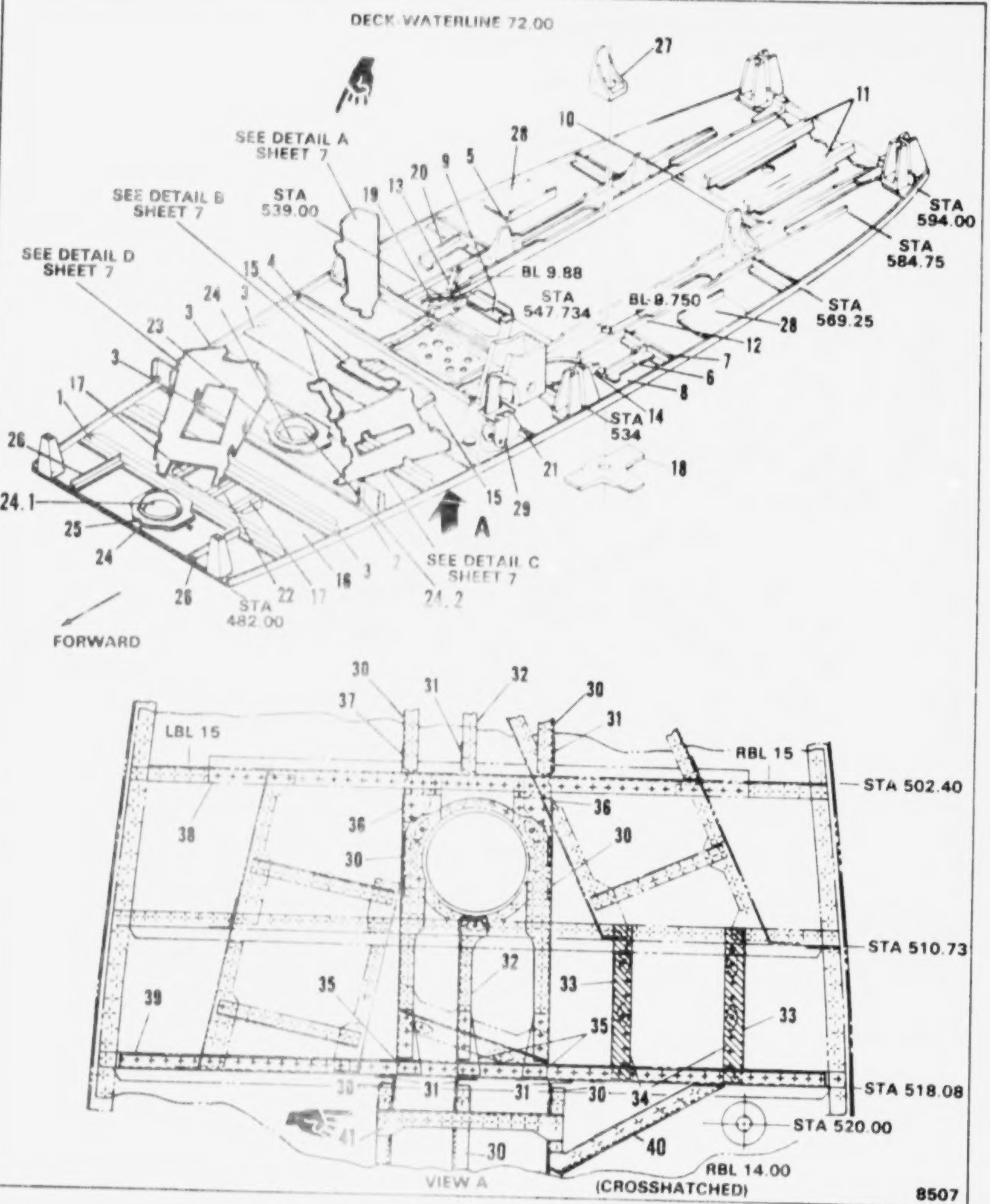
DECK REPAIRS WATERLINE 72.00

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL		REPAIR MATERIAL		REPAIR TASK
1	ZEE	0.050	2024-T4 CLAD	0.063	2024-T3 CLAD	NOTE G
2	CAP	ALCOA 13816	7075-T6	0.125	4130	NOTE G
3	ZEE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G
4	ANGLE	ALCOA 5401	7075-T6	0.050	4130	NOTE G
5	CHANNEL	NAS345-134	7075-T6	0.160	4130	2-13
6	TEE	ALCOA 62409	7075-T6	0.100	4130	NOTE G
7	TEE	AND10136-2002	7075-T6	0.100	4130	NOTE G
8	WEB	0.063	7075-T6 BARE	0.063	7075-T6 CLAD	2-13
9	STIFFENER	AND10134-1205	7075-T6	0.125	4130	2-29
10	STIFFENER	AND10133-1002	7075-T6	0.125	4130	2-29
11	ZEE	AND10138-1004	7075-T6	0.071	4130	NOTE G
12	CHANNEL	NAS345-134	7075-T6	0.160	4130	2-13
13	ANGLE	ALCOA 62564	7075-T6	0.080	4130	NOTE G
14	ANGLE	ALCOA 27778	7075-T6	0.100	4130	NOTE G
15	ANGLE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G
16	WEB	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	2-13
17	ANGLE	0.050	7075-T6 BARE	0.063	7075-T6 CLAD	NOTE G
18	PLATE	0.375 4340 STEEL		NOTE B		NOTE G
19	SUPPORT ASSEMBLY	114S4823		NOTE F		NOTE G
20	ANGLE	ALCOA 16869	7075-T6	NOTE B		NOTE G
21	DOUBLER	0.040	7075-T6 BARE	NOTE B		NOTE G
22	ANGLE	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE G
23	RETAINER	0.025	2024-T4 CLAD	NOTE D		NOTE G
24.1	DOMED COVER	NONE		0.040	6061	NOTE G
24.2	DOMED COVER	NONE		0.040	6061	NOTE G
24	SEAL	0.032 SILICON RUBBER SHEET		NOTE B		NOTE G
25	RETAINER	0.025	2024-T4 CLAD	NOTE D		NOTE G
26	ANGLE	VS70504-3	7075-T6 BARE	0.025	7075-T6 CLAD	NOTE G
27	SUPPORT	AZ80 AF MAG AL FORG		NOTE B		NOTE G
28	DOUBLER	0.032	7075-T6 BARE	0.040	7075-T6 CLAD	NOTE G
29	SUPPORT ASSEMBLY	114S4824		NOTE F		NOTES G & H
30	ANGLE	0.050	7075-T6	0.063	7075-T6	NOTES G & H
31	CLIP	AND10133-1401	7075-T6511	NOTE B		NOTES G & H
32	ANGLE	0.050	7075-T6	0.063	7075-T6	NOTES G & H
33	ANGLE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTES G & H
34	FILLER	0.050	2024-T3 CLAD	NOTE B		NOTES G & H
35	ANGLE	0.050	2024-T3 CLAD	NOTE B		NOTES G & H
36	CLIP	0.050	7075-T6	NOTE B		NOTES G & H
37	CLIP	AND10133-1401	7075-T6511	NOTE B		NOTES G & H
38	ZEE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTES G & H
39	CHANNEL	0.050	2024-T3 CLAD	0.063	2024-T3	NOTES G & H
40	ANGLE	0.050	2024-0	NOTE B		NOTES G & H
41	ZEE	0.050	2024-T3 CLAD	0.063	2024-T3	NOTES G & H

NOTES:
A All dimensions are in inches.
B Replace with new material as original.
C Replace with new retainer 114S4113-129.
D Replace with new retainer 114S4113-127.
E Repair as shown on sheet 7 or replace with new support assembly 114S4823-1.
F Repair as shown on sheet 7 or replace with new support assembly 114S4824-1.
G TM 55-1500-204-25/1.
H Effective only for M3004-M3091
(81-23381 thru 81-23389)
(82-23762 thru 82-23780)
(83-24102 thru 83-24125)
(84-24152 thru 84-24157)

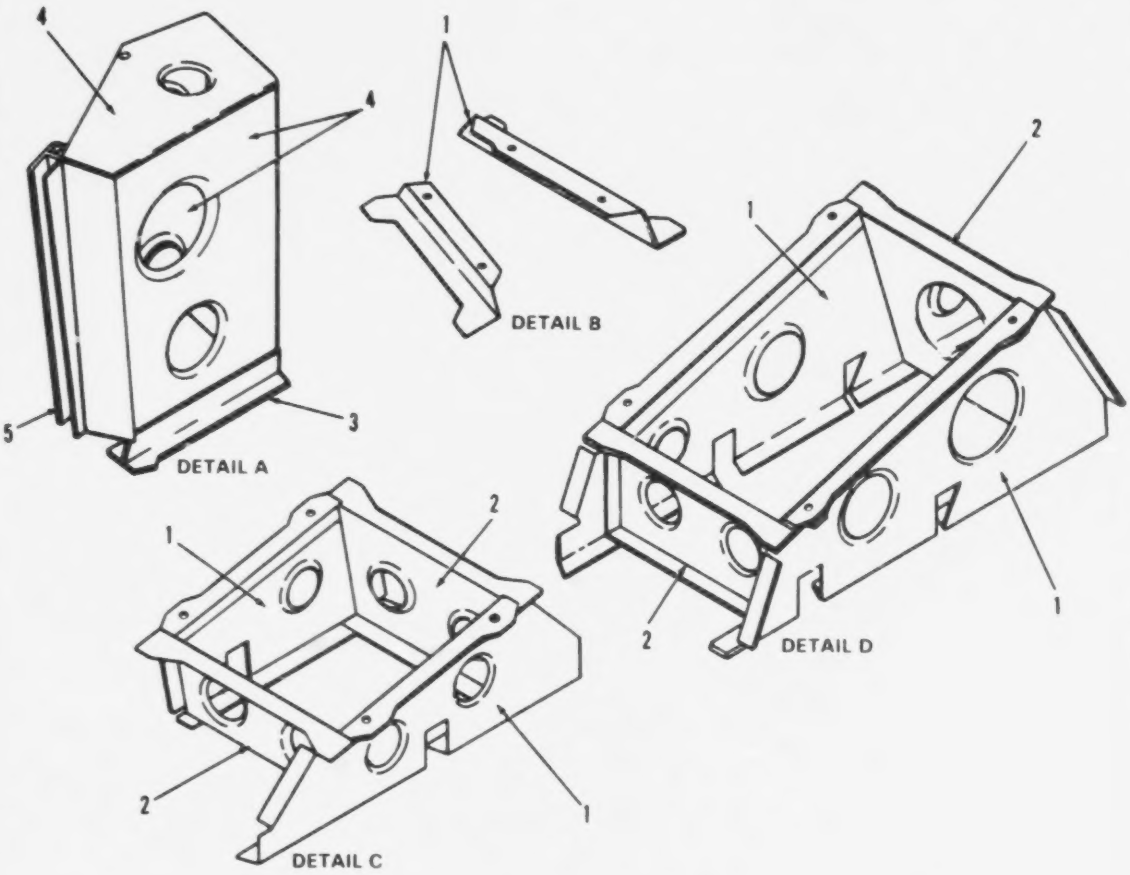
Aft Pylon Structure Repair (Sheet 5 of 10)

GO TO NEXT PAGE


DECK WATERLINE 72.00
27
11
10
28
SEE DETAIL A
SHEET 7
20
9
5
19
13
STA
594.00
STA
584.75
SEE DETAIL B
SHEET 7
STA
539.00
SEE DETAIL D
SHEET 7
15
4
BL 9.88
STA
547.734
BL 9.750
28
STA
569.25
24
3
23
3
12
7
6
8
3
17
1
26
14
STA
534
21
18
15
29
24.1
25
24
A
SEE DETAIL C
SHEET 7
26
22
17
16
3
2
24.2
STA
482.00
FORWARD
30
37
31
32
30
31
LBL 15
RBL 15
STA 502.40
38
36
36
30
30
STA 510.73
39
35
32
33
33
35
STA 518.08
30
31
31
30
34
41
30
40
STA 520.00
VIEW A
RBL 14.00
(CROSSHATCHED)
8507

Aft Pylon Structure Repair (Sheet 6 of 10)

GO TO NEXT PAGE



PYLON HYDRAULIC SUPPORT STRUCTURE

INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ZEE	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD	NOTE B.
2	ZEE	0.050 2024-T3 CLAD	0.063 2024-T3 CLAD	NOTE B.
3	TEE	ALCOA 49225 7075-T6	0.063 4130	NOTE B.
4	WEB	0.032 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13
5	WEB END	0.032 2024-T3 CLAD	0.050 2024-T3 CLAD	2-13

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. TM 55-1500-204-25/1

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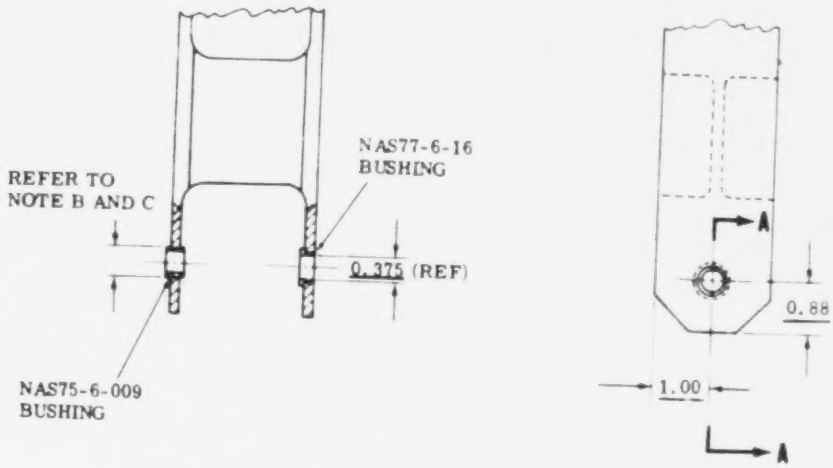
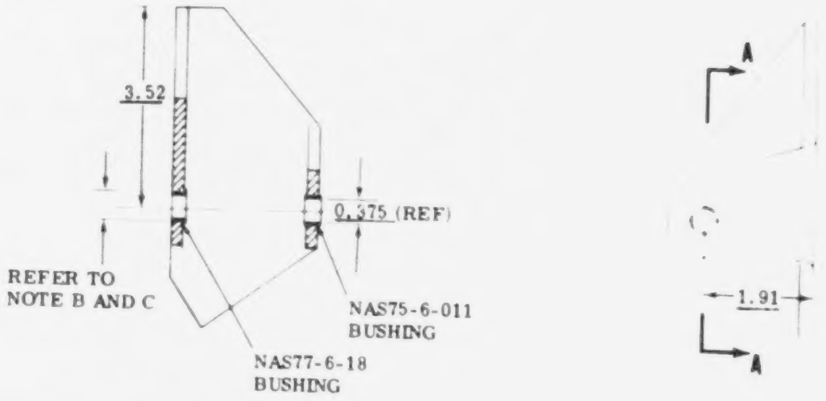
GO TO NEXT PAGE

Aft Pylon Structure Repair (Sheet 7 of 10)

SUPPORT ASSEMBLY 114S4824-1


REFER TO
NOTE B AND C
NAS77-6-16
BUSHING
0.375 (REF)
NAS75-6-009
BUSHING
A
0.88
1.00
A

SUPPORT ASSEMBLY 114S4823-1


3.52
0.375 (REF)
REFER TO
NOTE B AND C
NAS75-6-011
BUSHING
NAS77-6-18
BUSHING
A
1.91
A

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. IF BUSHING MOUNTING HOLES ARE WORN OR ELONGATED. LINE REAM BOTH SIDES

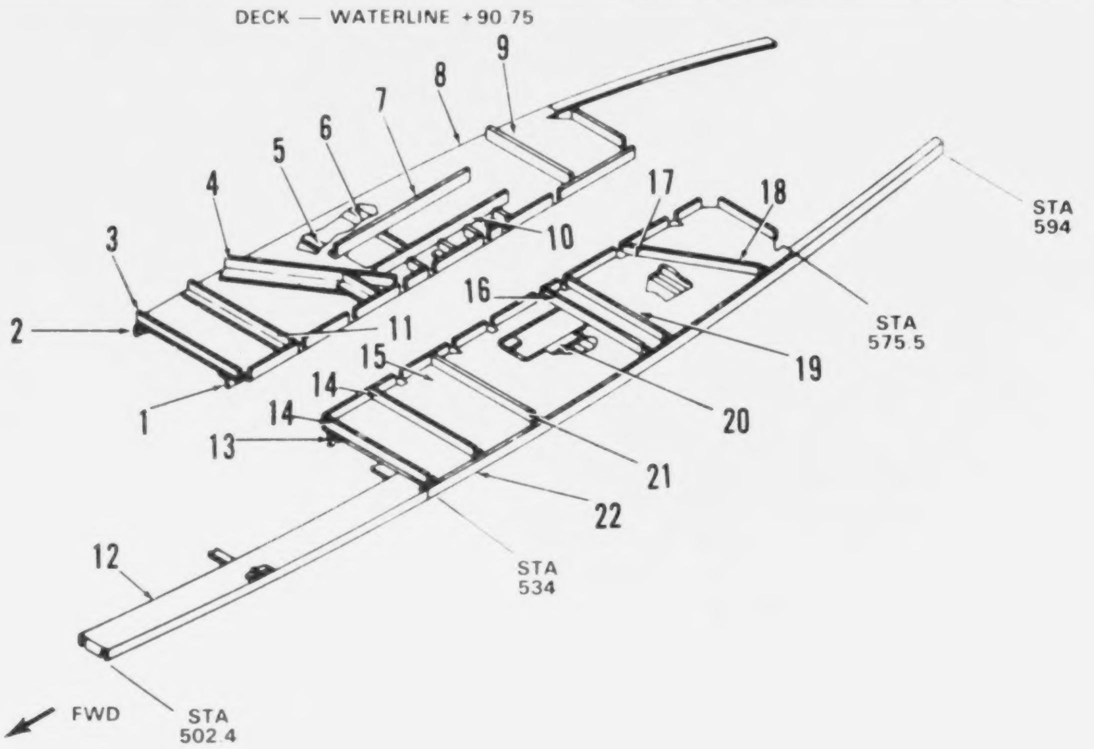
C. 80 MICROINCHES (RMS) MAX SURFACE FINSIH

42 X 51

D145-9778-SPA

GO TO NEXT PAGE

Aft Pylon Structure Repair (Sheet 8 of 10)



INDEX NO.	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
2	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
3	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
4	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
5	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
6	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
7	ANGLE	HARVEY 15078 7075-T6	0.063 4130	NOTE B.
8	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
9	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
10	ANGLE	HARVEY 15078 7075-T6	0.063 4130	NOTE B.
11	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
12	CHANNEL	0.040 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
13	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
14	ANGLE	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	NOTE B.
15	WEB	0.025 7075-T6 BARE	0.032 7075-T6 CLAD	2-13
16	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
17	CHANNEL	0.032 7075-T6 BARE	0.040 7075-T6 CLAD	2-13
18	ANGLE	AND10133-0701 7075-T6	0.040 7075-T6 CLAD	NOTE B.
19	ANGLE	REYNOLDS 5761 7075-T6	0.070 4130	NOTE B.
20	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.
21	ANGLE	HARVEY 15078 7075-T6	0.063 7075-T6 CLAD	NOTE B.
22	ANGLE	ALCOA 22477 7075-T6	0.050 4130	NOTE B.

NOTES

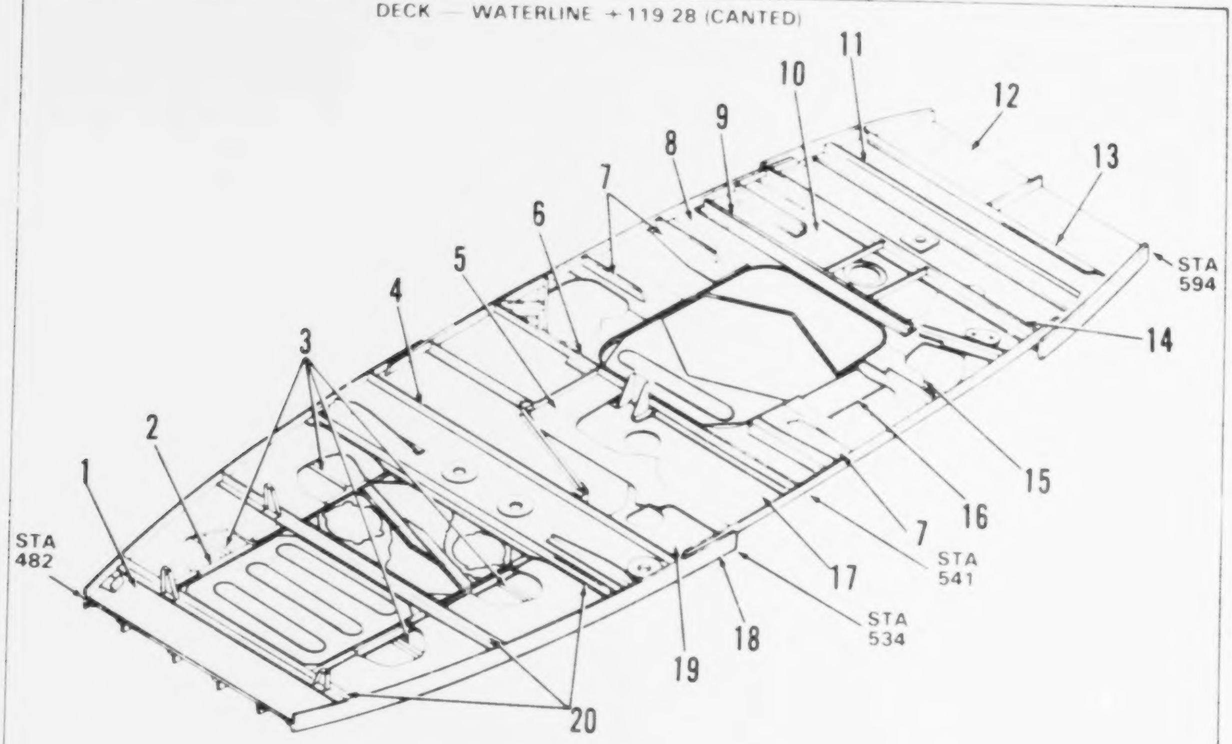
A. ALL DIMENSIONS ARE IN INCHES

B. TM 55-1500-204-25/1

306

Aft Pylon Structure Repair (Sheet 9 of 10)

GO TO NEXT PAGE



INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	WEB	0 025 7075 T6 BARE	0 032 7075 T6 CLAD	2 13
2	ANGLE	ALCOA 45827 7075 T6	0 080 4130	NOTE C
3	ANGLE	VS70504 3	0 032 4130	NOTE C
4	TEE	ALCOA 52057 7075 T6	0 063 4130	NOTE C
5	DOUBLER	0 063 2024 T4 BARE	0 071 2024 T3 CLAD	NOTE C
6	TEE	AND10136 2006 7075 T6	—	NOTE C
7	TEE	ALCOA 33185 7075 T6	—	NOTE C
8	WEB	0 050 301 CRES 1/4 HD	0 063 301 CRES 1/4 HD	2 13
9	TEE	AND10136 1406 7075 T6	0 100 4130	NOTE C
10	WEB	0 040 2024 T4 CLAD	0 050 2024 T3 CLAD	2 13
11	ZEE	0 063 7075 T6 BARE	0 071 7075 T6 CLAD	NOTE C
12	WEB	0 032 2024 T3 CLAD	0 040 2024 T3 CLAD	2 13
13	ZEE	0 032 7075 T6 BARE	0 040 7075 T6 CLAD	NOTE C
14	ANGLE	ALCOA 12883 7075 T6	0 063 4130	NOTE C
15	ANGLE	REYNOLDS 8158 7075 T6	0 125 4130	NOTE C
16	ANGLE	0 125 301 CRES 1/4 HD	0 125 301 CRES 1/4 HD	NOTE C
17	WEB	0 032 301 CRES 1/2 HD	0 040 301 CRES 1/2 HD	2 13
18	CAP	VS90525 7075 T6	0 125 4130	NOTE C
19	DOUBLER	0 063 2024 T4 CLAD	0 071 2024 T3 CLAD	NOTE C
20	TEE	REYNOLDS 19810	—	NOTE C

NOTES

A ALL DIMENSIONS ARE IN INCHES
B STATIONS SHOWN REPRESENT THE CENTER LINE OF OVERLAP OF THE WEBS
C TM 55-1500-204-25/1

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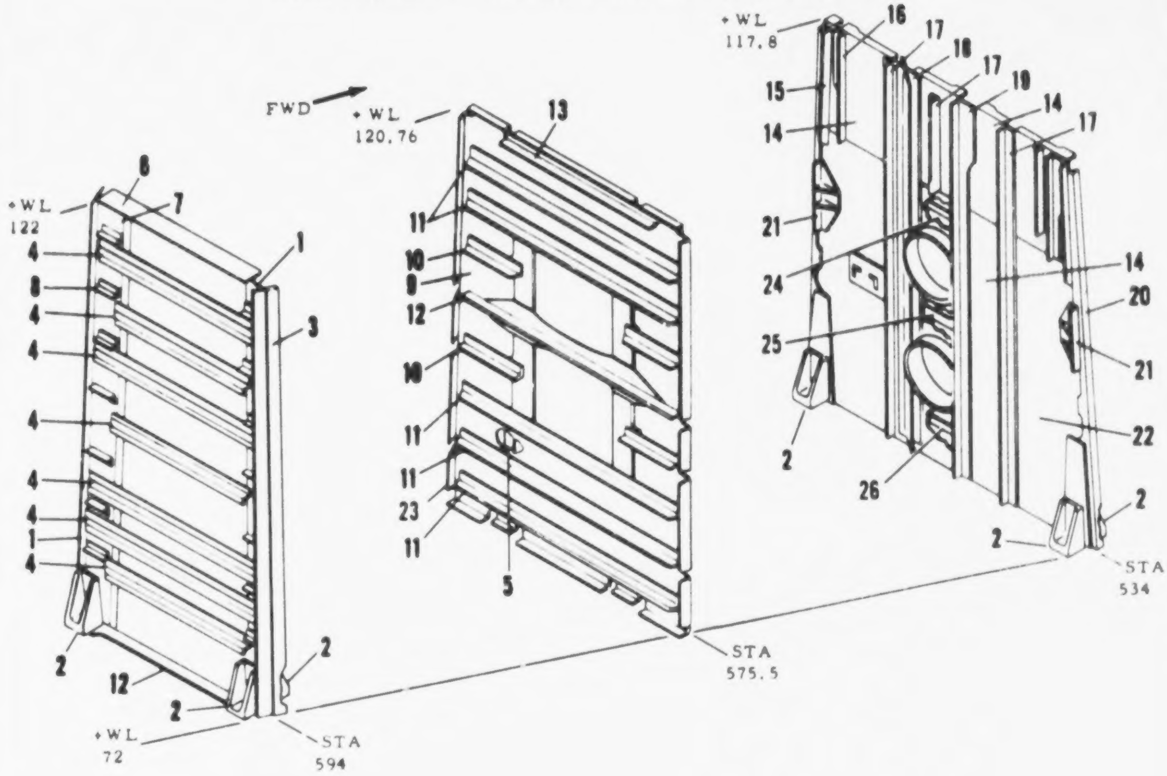
Aft Pylon Structure Repair (Sheet 10 of 10)

GO TO NEXT PAGE

FULL FORMERS -- STATIONS 534.0, 575.50, AND 594.0


+WL
117.8
16
17
18
17
19
14
17
15
14
21
24
25
2
26
14
20
21
22
2
2
STA
534
FWD
+WL
120.76
13
11
10
9
12
10
11
11
23
11
5
STA
575.5
+WL
122
6
7
4
8
4
4
4
4
4
1
4
1
3
2
12
2
2
+WL
72
STA
594

NOTES

A. ALL DIMENSIONS ARE IN INCHES

42 X 51

D145-9781-SPA

Full Former Repairs—Aft Pylon Structure Assembly (Sheet 1 of 2)

GO TO NEXT PAGE

2-304 REPAIR PYLON (Continued) 2-304

FULL FORMERS — STATIONS 534, 575.50, AND 594

INDEX NO	NOMENCLATURE	ORIGINAL MATERIAL	REPAIR MATERIAL	REPAIR TASK
1	CAP	HARVEY 17413 7075-T6	0.080 4130	NOTE E
2	ATTACHMENT	2014-T6 FORGING	NOTE B	NOTE E
3	PLATE	0.125 7075-T6 BARE	0.125 7075-T6 CLAD	NOTE E
4	ZEE	AND10138-1004 7075-T6	0.063 4130	NOTE E
5	TEE	REYNOLDS 26598 7075-T6	0.125 7075-T6 CLAD	NOTE E
6	CAP	BAC1514-539 7075-T6	0.100 4130	NOTE E
7	WEB	0.032 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
8	ANGLE	0.090 7075-T6 BARE	0.090 7075-T6 CLAD	NOTE E
9	WEB	0.040 7075-T6 CLAD	0.050 2024-T3 CLAD	2-13
10	ANGLE	ALCOA 67580 7075-T6	0.063 4130	NOTE E
11	ANGLE	ALCOA 27076 7075-T6	0.063 4130	NOTE E
12	TEE	ALCOA 66517 7075-T6	0.063 4130	NOTE E
13	CHANNEL	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	2-13
14	WEB	0.050 2024-T4 CLAD	0.050 2024-T3 CLAD	2-13
15	ANGLE	VS70504-2 7075-T6	0.040 7075-T6 CLAD	NOTE E
16	ANGLE	0.040 2024-T4 CLAD	0.050 2024-T3 CLAD	NOTE E
17	CAP	ALCOA 15820 7075-T6	0.080 4130	NOTE E
18	EXTRUSION	BAC1520-1320	NOTE C	NOTE E
19	ANGLE	0.040 7075-T6 BARE	0.050 7075-T6 CLAD	NOTE E
20	CAP	HARVEY 17413 7075-T6	0.090 4130	NOTE E
21	SUPPORT	ZK60-T5 FORGING	NOTE D	NOTE E
22	WEB	0.071 2024-T4 CLAD	0.071 2024-T3 CLAD	2-13
23	ANGLE	0.063 7075-T6 CLAD	0.071 7075-T6 CLAD	NOTE E
24	STRAP	0.100 2024-T3	0.100 2024-T3	NOTE E
25	STIFFENER	AND10136 2024-T4	AND10136 2024-T4	2-29
26	STIFFENER	AND10134 2024-T4	AND10134 2024-T4	2-29

NOTES:
- A All dimensions are in inches.
- B Replace with new attachment 114A4801-1 if damage is other than minor.
- C Repair is impractical. Replace with a new length of original material.
- D Replace with new supports 114S4802-5 LH and -7 RH if damage is other than minor.
- E TM 55-1500-204-25-1

Full Former Repairs — Aft Pylon Structure Assembly (Sheet 2 of 2)

FOLLOW-ON MAINTENANCE
As required.

END OF TASK

2-304.1 REPLACE PYLON DECK DRAIN LINES 2-304.1

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692

Heat Gun

Materials:

As Required

Personnel Required:

Medium Helicopter Repairer

Inspector

References:

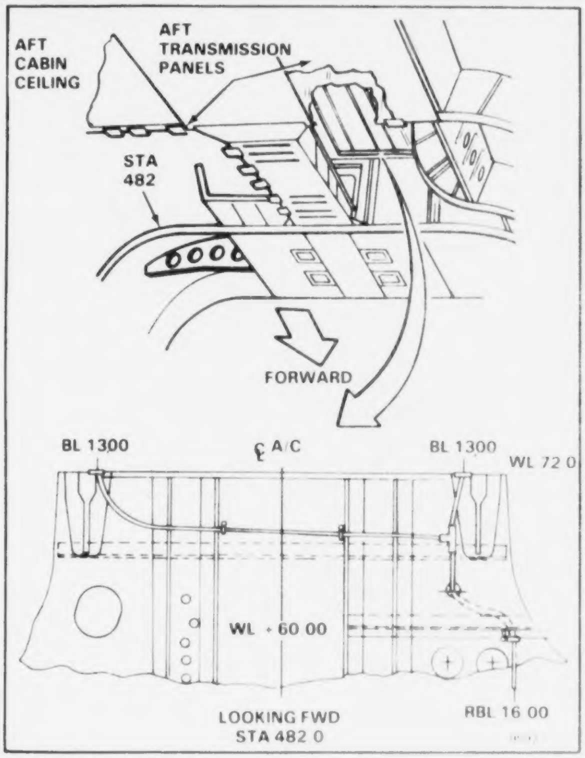
TM 55-1520-240-23P

Equipment Condition:

Battery Disconnected (Task 1-39)

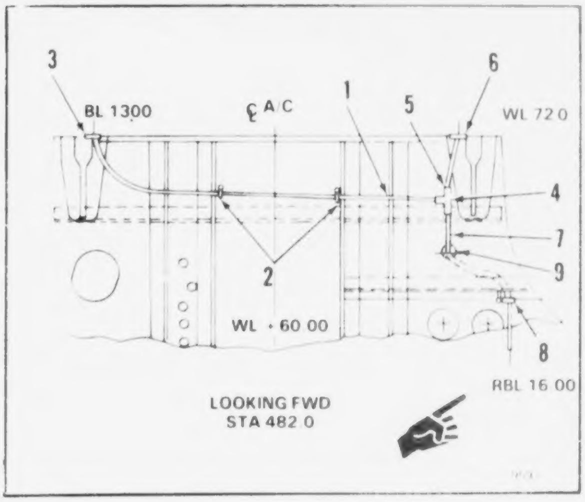
Electric Power Off

Hydraulic Power Off


AFT CABIN CEILING
AFT TRANSMISSION PANELS
STA 482
FORWARD
BL 1300
℄ A/C
BL 1300
WL 72 0
WL + 60 00
LOOKING FWD
STA 482 0
RBL 16 00

REMOVE

1. **Measure and record length** of tubing (1).
2. **Loosen two clamps (2).**
3. **Cut tube (1)** from drain fitting (3) and tee (4).
4. **Remove tube (1)** from clamps (2).
5. **Measure and record** length of tubing (5).
6. **Cut tube (5)** from drain fitting (6) and tee (4) and remove tube.
7. **Measure and record** length of tube (7).
8. Loosen clamp (8).
9. Cut tube (7) from tee (4) and remove through grommet (9).


3
6
1
5
BL 1300
℄ A/C
WL 72 0
4
7
9
2
WL + 60 00
8
RBL 16 00
LOOKING FWD
STA 482 0

GO TO NEXT PAGE

2-304.1 REPLACE PYLON DECK DRAIN LINES (Continued) 2-304.1

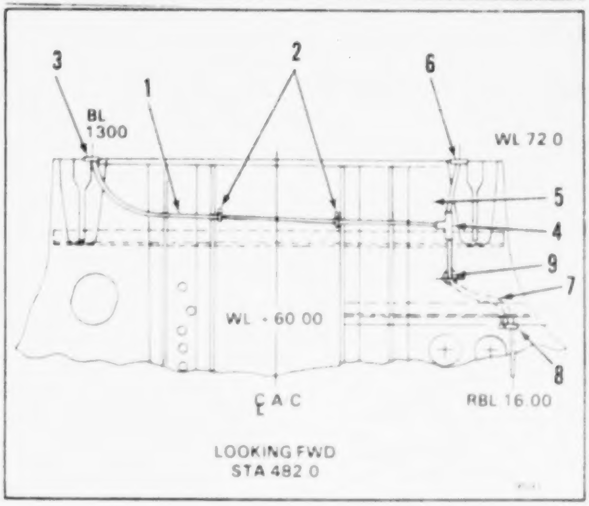
INSTALL

10. **Cut tube (1)** to correct length.
11. Feed through clamps (2).
12. Slide ends of tube (1) over drain fitting (3) and tee (4). Heat shrink tube ends with heat gun.
13. Tighten clamps (2).
14. Cut tube (5) to correct length.
15. Slide ends of tube (5) over drain fitting (6) and tee (4). Heat shrink tube ends with heat gun.
16. Cut tube (7) to correct length.
17. Feed tube (7) through clamp (8) and grommet (9).
18. Slide end of tube (7) over tee (4). Heat shrink tube end with heat gun.
19. Tighten clamp (8).

INSPECT

FOLLOW-ON MAINTENANCE:

None



LOOKING FWD
STA 482 0

END OF TASK

2-305 REPAIR AFT PYLON (AVIM) 2-305

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-304

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Repair damage to a web which affects more than 25 percent of a web cross section between boundary members (caps) or which extends into the cap area by insertion (Task 2-304).
2. The insertion shall extend from cap to cap and pick up all existing stiffeners in the area.
3. Repair damage to a formed part or an extruded part.
4. Extensive damage, as loss of a major portion of length of deck member, requires replacement in whole in part (Task 304).
5. When replacing members, pick up existing rivet locations and use next larger diameter rivets.
6. Replace bushings if loose, damaged, or have elongated bores (Task 2-304).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) 2-306

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Extension, 1/2-Inch Drive
Aft Pylon Skid (T55)
Hoisting Eye (T32)
Hoist, Minimum Capacity 4000, Pounds
Container, Two Quart
Crowfoot Socket Wrench, 7/8-Inch
Crowfoot Socket Wrench, 1 1/4-Inch
Crowfoot Socket Wrench, 1 1/2-Inch
Open End Wrench, 1 1/8-Inch
Open End Wrench, 1 1/4-Inch
Open End Wrench, 1 1/2-Inch
Ratchet, 1/2-Inch Drive
Rope Guide Lines (4)
Socket, 9/16-Inch, 1/2-Inch Drive
Template, Bolt Location, Cardboard
Universal Joint, 1/2-Inch Drive
Work Stands (Side Bridge, Engine and Aft Pylon)
Workstand, Three Step

Materials:

Cloths (E135)
Gloves (E186)
Paper Tags (E264)
Pencil (E271)

Parts:

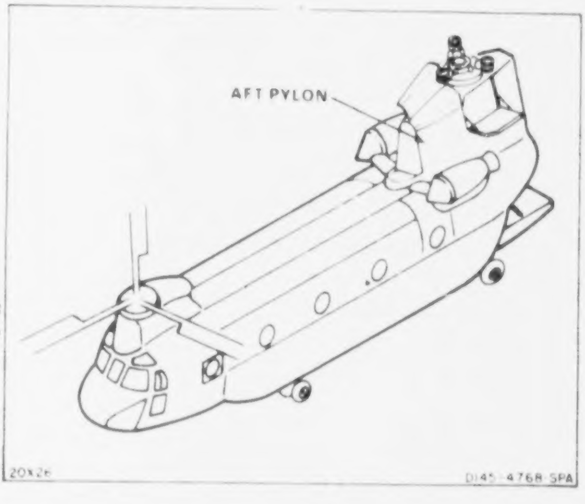
Nuts BACN10B For Aft Pylon Skid (T16)
Washers (VS15306#8) (As Required) For Aft Pylon Skid (T55)

Personnel Required:

Medium Helicopter Repairer (4)
Medium Helicopter Repairer
Inspector

Equipment Condition:

Battery Disconnected (Task 1-39)
Electrical Power Off
Hydraulic Power Off
No. 1 And No. 2 Flight Control Hydraulic Systems Depressurized (TM 55-1520-240-T)
Utility Hydraulic System Depressurized (TM 55-1520-240-T)
Leading Edge Hinged Fairing Removed (Task 2-279)
Right Forward Crown Fairing Opened (Task 2-2)
Rotary Wing Blades Removed (Task 5-64)
Servocylinder Safety Blocks Installed (Task 11-28)
No. 9 Drive Shaft Removed (Task 6-21)
Aft Transmission Removed (Task 6-92)
Pylon Lower Right Bellcrank Removed (Task 11-258)
Pylon Left Upper Connecting Link Removed (Task 11-252)
Pylon Left Aft Fuselage Connecting Link Disconnected (Task 11-244)
Fire Extinguishers (Bottles) Removed (Task 12-24)
Left And Right Pylon Access Panels Removed (Task 2-2)
Left And Right Aft Transmission Access Covers Removed (Task 2-2)
Left And Right Access Covers Removed (Task 2-2)
Left And Right Hydraulic Module Inspection Access Covers Removed (Task 2-2)
Left And Right Work Platforms Opened (Task 2-2)
Left Engine Transmission Oil Cooler Removed (Task 6-214)



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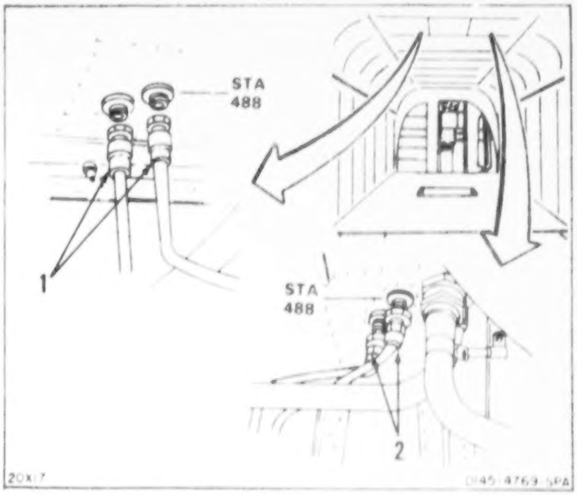
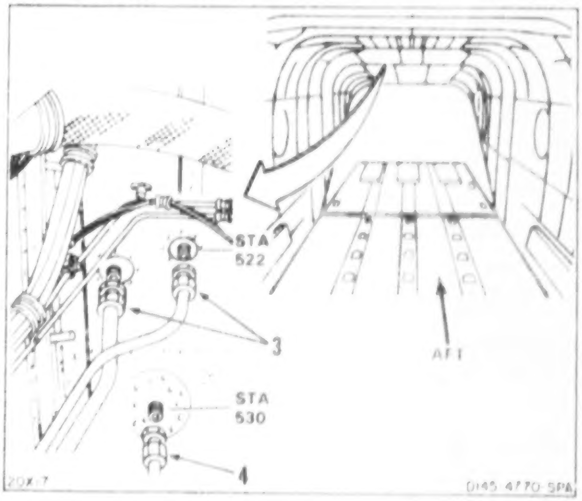
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued)

DISCONNECT HYDRAULIC TUBES AND DRAIN HOSES INSIDE AFT PYLON

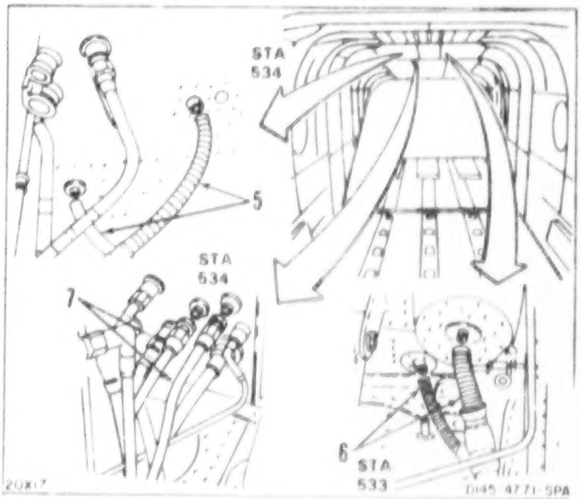
1. Tag and **disconnect two hydraulic tubes (1)** at station 488, left side. Use cloths (E135) and container for spilled fluid.
2. Tag and **disconnect two hydraulic tubes (2)** at station 488 right side. Use cloths (E135) and container for spilled fluid.


STA
488
1
STA
488
2
20X17
DI45-4769-SPA

3. Tag and **disconnect two hydraulic tubes (3)** at station 522 right side. Use cloths (E135) and container for spilled fluid.
4. Tag and **disconnect hydraulic tube (4)** at station 530, right side. Use cloths (E135) and container for spilled fluid.


STA
522
3
AFT
STA
530
4
20X17
DI45-4770-SPA

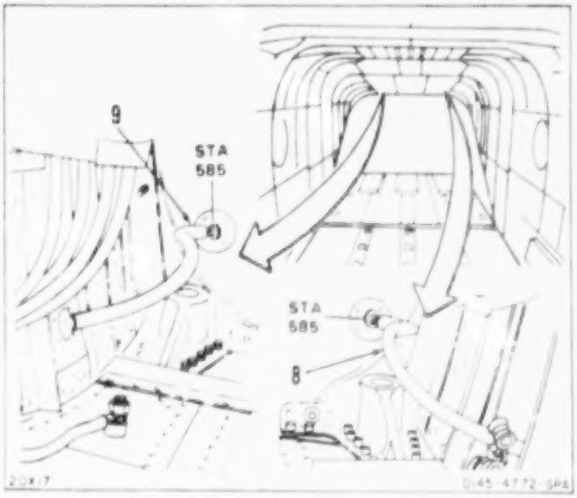
5. Tag and **disconnect two drain hoses (5)** at station 534, right side. Use cloths (E135) and container for spilled fluid.
6. Tag and **disconnect two drain hoses (6)** at station 533, left side. Use cloths (E135) and container for spilled fluid.
7. Tag and **disconnect eight hydraulic tubes (7)** at station 534. Use clothes (E135) and container for spilled fluid.


STA
534
5
STA
534
7
6
STA
533
20X17
DI45-4771-SPA

GO TO NEXT PAGE

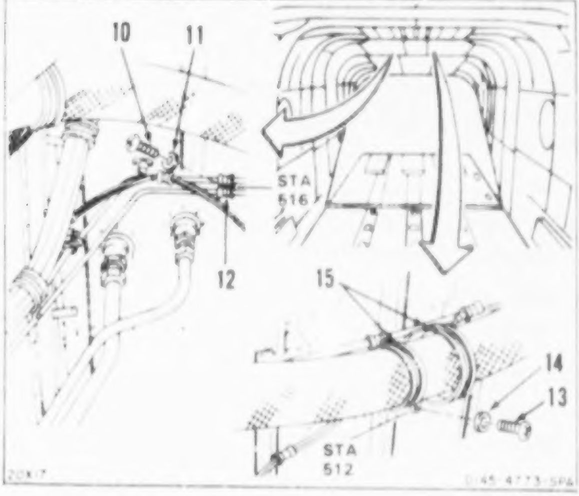
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

8. Tag and **disconnect drain hose (8)** at station 585, right side. Use cloths (E135) and container for spilled fluid.
9. Tag and **disconnect drain hose (9)** at station 585, left side. Use cloths (E135) and container for spilled fluid.

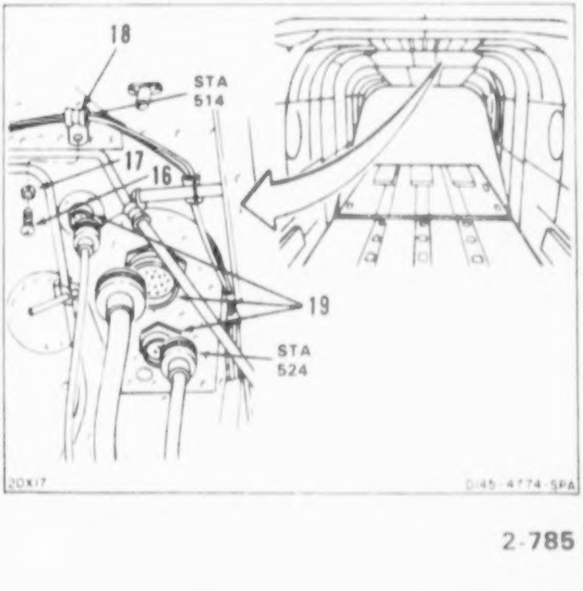

9
STA 585
STA 585
8
20X17
D145-4772-SPA

REMOVE CLAMPS AND DISCONNECT ELECTRICAL CONNECTORS INSIDE AFT PYLON

10. **Remove four** screws (10), washers (11), and **clamps (12)** at station 516.
11. **Remove two** screws (13), washers (14), and **clamps (15)** at station 512.


10
11
STA 516
12
15
14
13
STA 512
20X17
D145-4773-SPA

12. **Remove** screw (16), washer (17) **and clamp (18)** at station 514 left side.
13. Tag and **disconnect three electrical connectors (19)** at station 524, left side.


18
STA 514
17
16
19
STA 524
20X17
D145-4774-SPA

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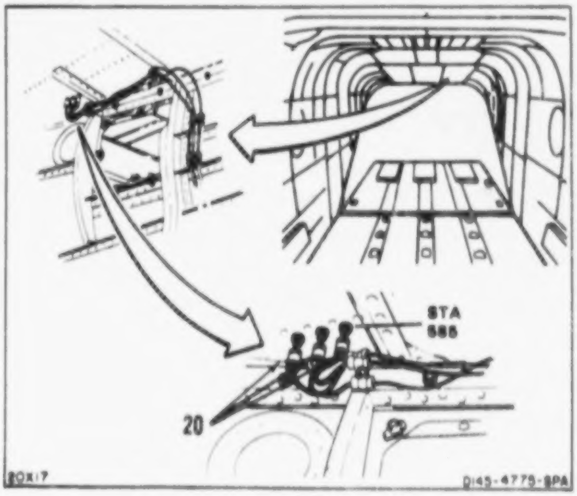
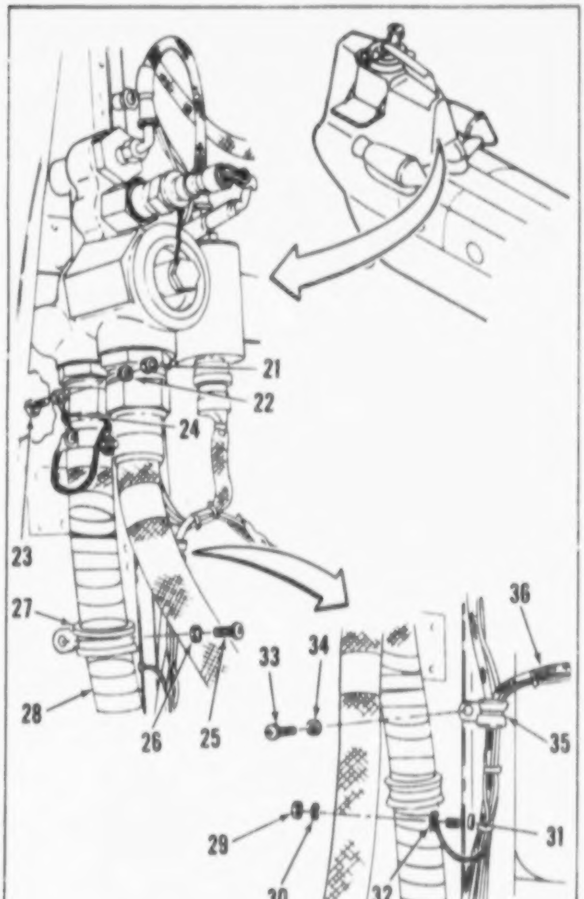
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

14. Tag and **disconnect three electrical connectors (20)** at station 585, left side.


STA
585
20
20X17
D145-4775-SPA

REMOVE CLAMPS AND DISCONNECT ELECTRICAL WIRES FORWARD OF AFT PYLON

15. Remove nut (21) and washer (22) from ground terminal (23). Tag and **disconnect electrical wire (24)** from terminal.
16. **Remove** screw (25), washer (26), and **clamp (27)** from engine oil hose (28).
17. Remove nut (29) and washer (30) from ground terminal (31). Tag and **disconnect electrical wire (32)** from terminal.
18. **Remove six** screws (33), washers (34), and **clamps (35)** from wire harness (36).


21
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36
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31
20X34
D145-4776-SPA

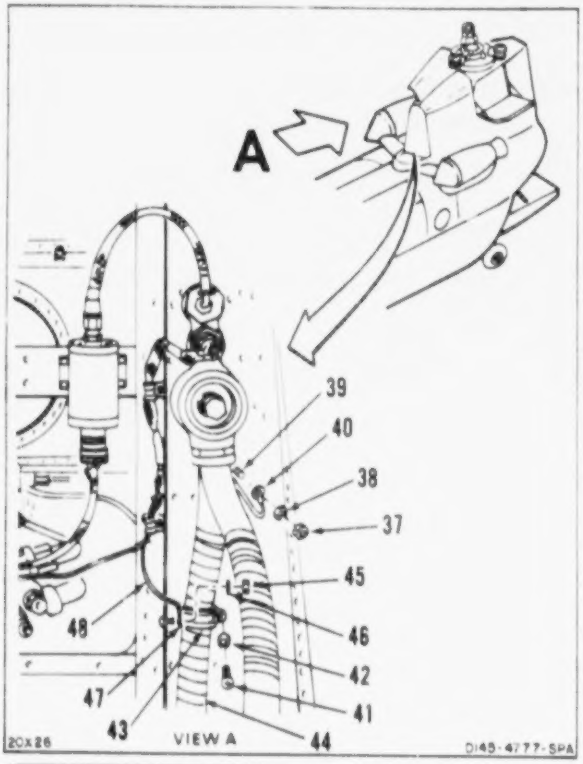
GO TO NEXT PAGE

2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

19. Remove nut (37) and washer (38) from ground terminal (39). Tag and **disconnect electrical wire (40)** from terminal.

20. **Remove** screw (41), washer (42), and **clamp (43),** from engine oil hose (44).

21. Remove nut (45) and washer (46) from ground terminal (47). Tag and **disconnect electrical wire (48)** from terminal.

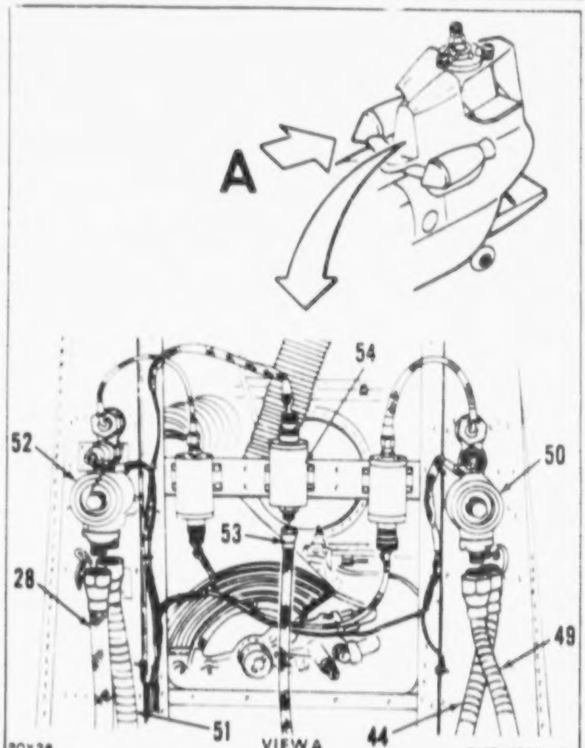

A
39
40
38
37
45
46
42
41
48
47
43
VIEW A
44
20X26
DI45-4777-SPA

DISCONNECT OIL HOSES, ELECTRICAL CONNECTORS AND REMOVE WIRE HARNESS FORWARD OF AFT PYLON

22. Tag and **disconnect combining transmission oil base (49) and engine oil hose (44)** from left strainer (50). Use cloths (E135) and container for spilled oil.

23. Tag and **disconnect combining transmission oil hose (51) and engine oil hose (28)** from right strainer (52). Use cloths (E135) and container for spilled oil.

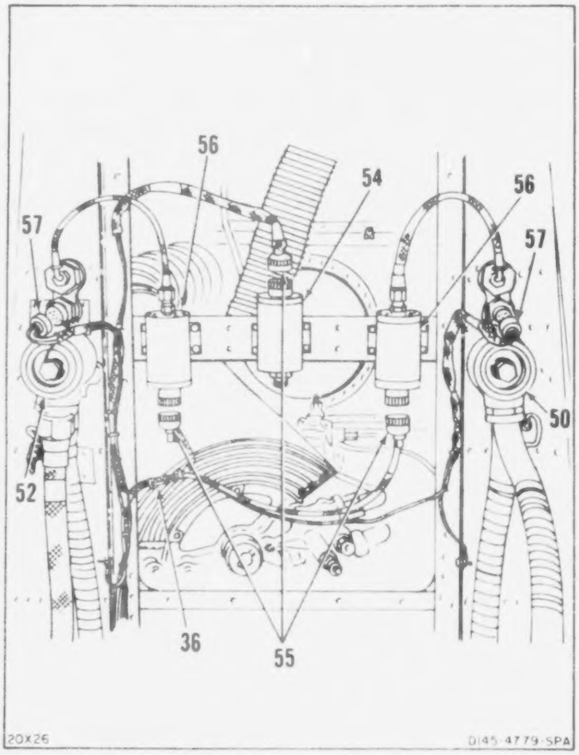
24. Tag and **disconnect combining transmission oil hose (53)** from center transducer (54). Use cloths (E135) and container for spilled oil.


A
54
52
50
53
28
49
51
VIEW A
44
20X26
DI45-4778-SPA

GO TO NEXT PAGE

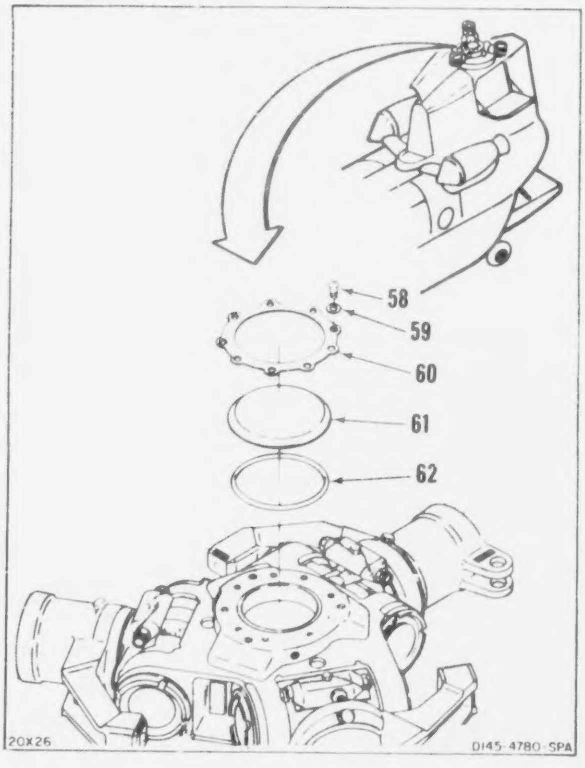
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

25. Tag and **disconnect three electrical connectors (55)** from transducers (54 and 56).
26. Tag and **disconnect two electrical connectors (57)** from left and right strainers (50 and 52).
27. Tag and **remove wire harness (36).**


56
54
56
57
57
50
52
36
55
20X26
D145-4779-SPA

INSTALL HOISTING EYE (T32) ON AFT ROTOR SHAFT

28. **Remove nine screws (58)** and washers (59) from retainer (60).
29. **Remove** retainer (60), **cover (61),** and packing (62).


58
59
60
61
62
20X26
D145-4780-SPA

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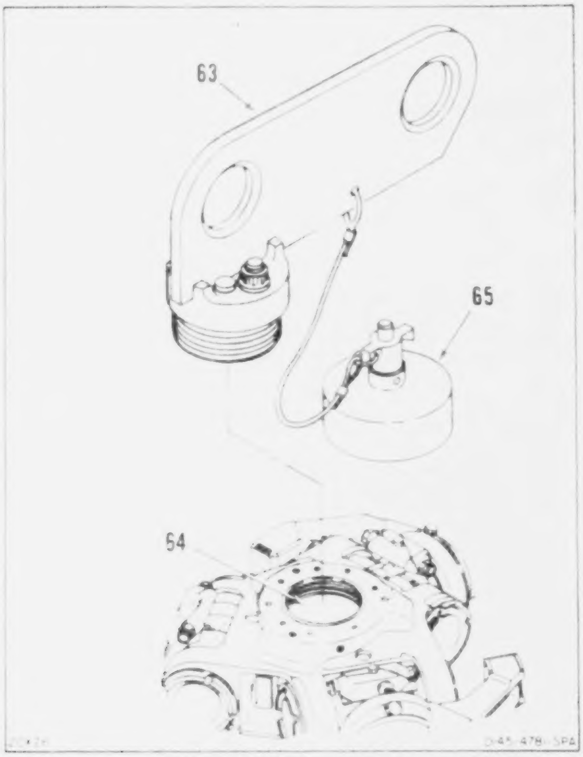
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

30 Deleted

31 Remove cover (65) from hoisting eye (T32) (63)

32 **Install hoisting eye (T32) (63) in aft rotor shaft (64).**

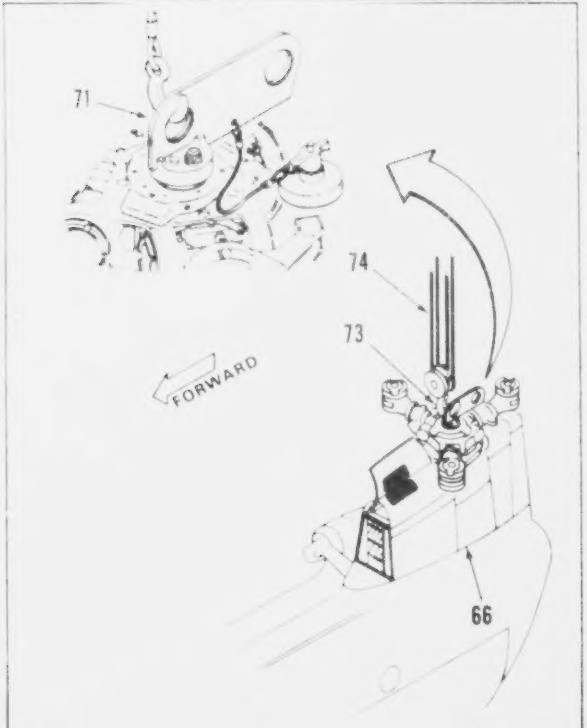

63
65
64
20x26
D145-4781-SPA

33 Cut fillet seal (66) from between pylon and attaching structure

CAUTION

Do not put tension on pylon when removing slack from cable.

34 **Install hoist hook (73)** through lifting eye (71) **Slowly remove slack from cable (74).**

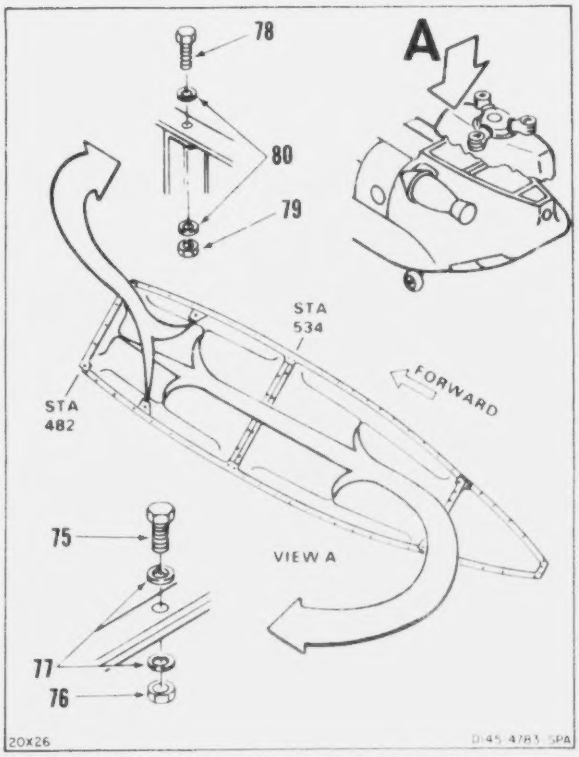

71
74
73
FORWARD
66
20x26
D145-4782-SPA

GO TO NEXT PAGE

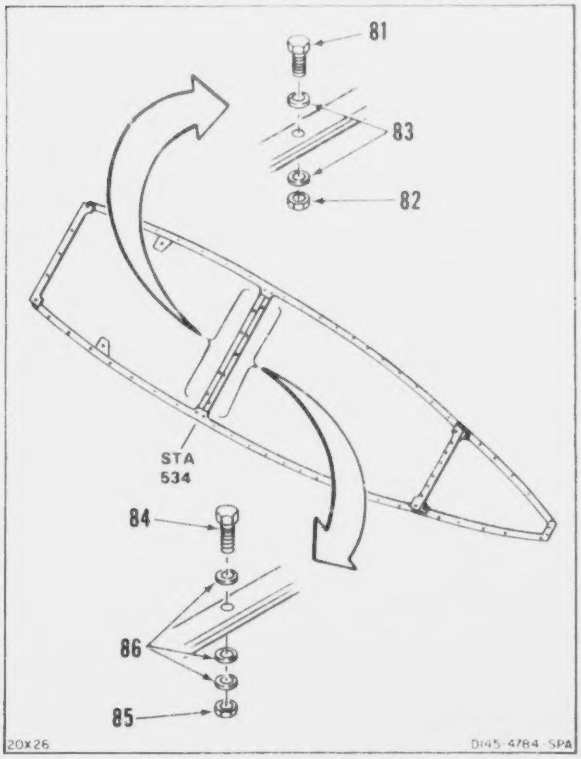
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

REMOVE MOUNTING BOLTS INSIDE AFT PYLON

35. Mark location and **remove 39 bolts (75),** nuts (76), and 78 washers (77). Use pencil (E271).
36. Mark location and **remove 12 bolts (78),** nuts (79), and 24 washers (80) (if installed). Use pencil (E271).


78
A
80
79
STA
534
FORWARD
STA
482
75
VIEW A
77
76
20x26
D145-4783-SPA

37. Mark location and **remove four bolts (81),** nuts (82), and eight washers (83). Use pencil (E271).
38. Mark location and **remove five bolts (84),** nuts (85), and 15 washers (86). Use pencil (E271).

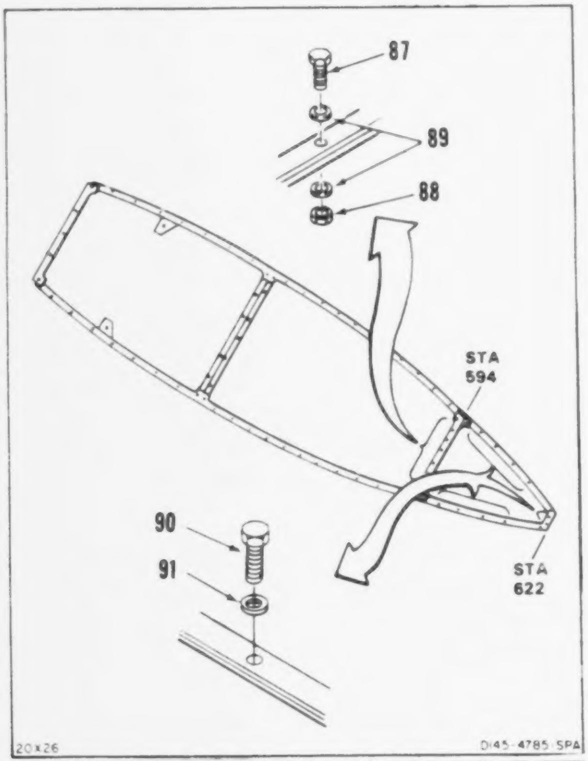

81
83
82
STA
534
84
86
85
20x26
D145-4784-SPA

GO TO NEXT PAGE

2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

39. Mark location and **remove six bolts (87),** nuts (88), and 12 washers (89). Use pencil (E271).

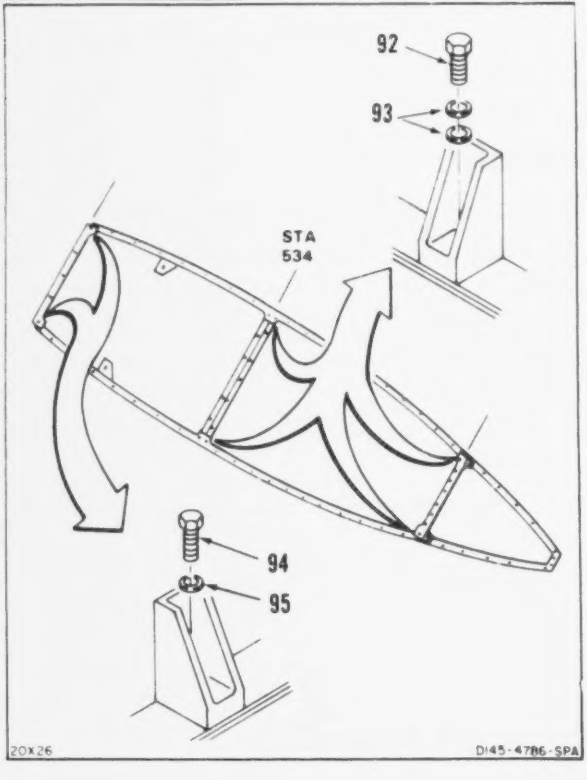
40. Mark location and **remove 12 bolts (90)** heads up and washers (91). Use pencil (E271).


87
89
88
STA
594
90
91
STA
622
20x26
D145-4785-SPA

41. Mark location and **remove eight bolts (92)** and 16 washers (93). Use pencil (E271).

42. Mark location and **Remove two bolts (94)** and washers (95). Use pencil (E271).

INSPECT


92
93
STA
534
94
95
20x26
D145-4786-SPA

GO TO NEXT PAGE

2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

REMOVE AFT PYLON

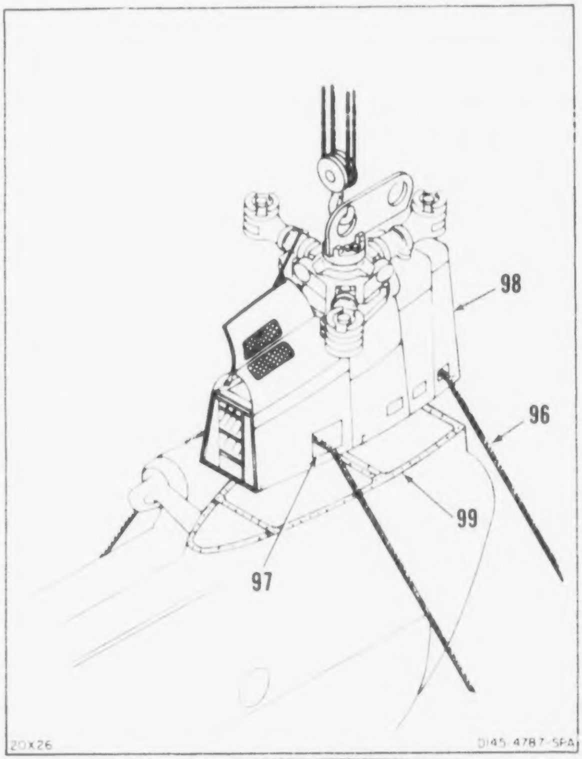
43. With aid of helpers **attach four guide lines (96) through access cover holes (97)** in pylon (98). Use gloves (E186).

44. Cut fillet seal (99).

WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines, and moved carefully to prevent injury to personnel or damage to equipment.

45. With aid of helpers, **hold guide lines (96)** to control pylon (98). **Slowly raise pylon just enough to break seal (99).** Use gloves (E186).



46. Position **pylon (98) over skid (T16) (100).** Make sure components on bottom of pylon will clear skid (T55).

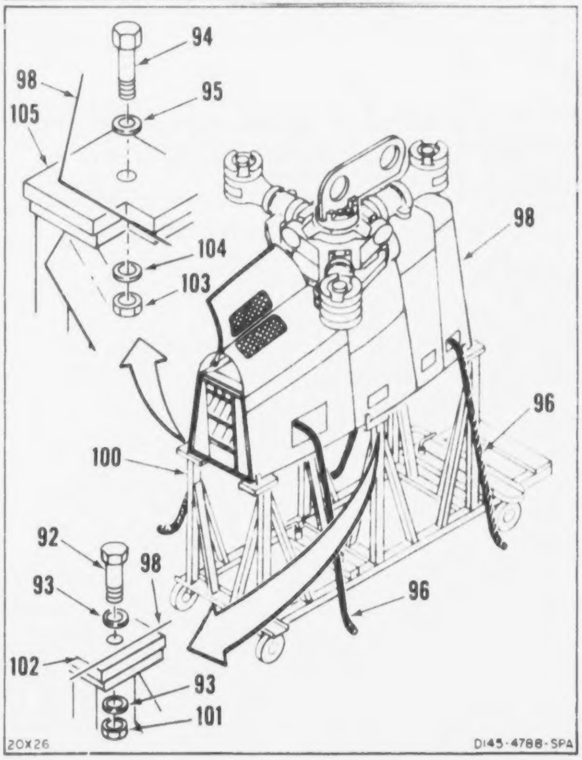
INSPECT

47. **Position pylon (98) on skid (T55) (100).**

48. **Install eight bolts (92),** nuts (101), and 16 washers (93) through pylon (98) and skid mounting bracket (102).

49. Install two bolts (94), nuts (103), washers (95) and washers (VS 15306-8) (104), through pylon (98) and skid mounting brackets (105).

50. With aid of helpers, remove guide lines (96). Use gloves (E186).



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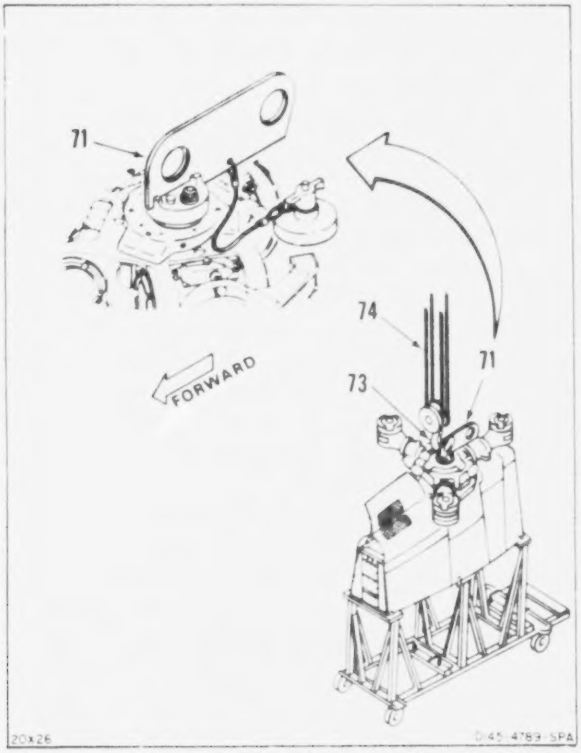
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-306

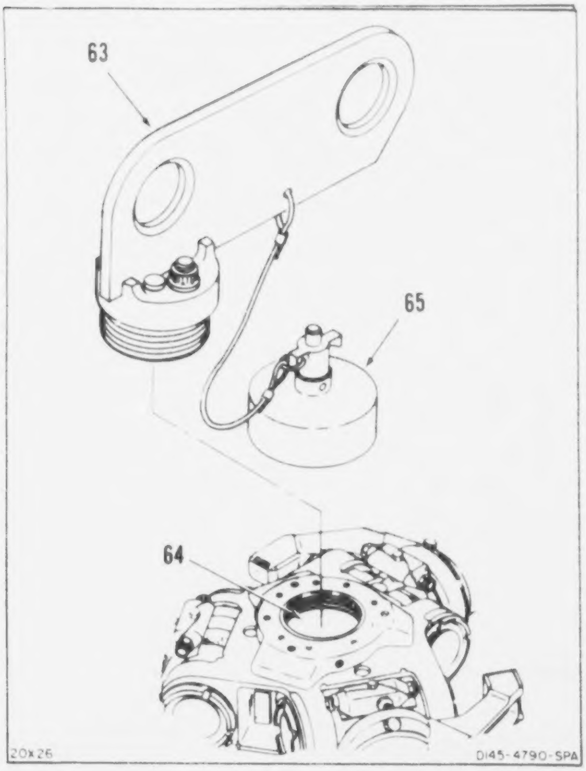
REMOVE SLING (T15) FROM AFT PYLON

51. **Loosen cable (74) and remove hoist hook (73)** from lifting eye (71).


71
74
71
73
FORWARD
20x26
D145-4789-SPA

52. Remove hoisting eye (T32) (63) from aft rotor shaft (64).

53. Install cover (65) on hoisting eye (63).


63
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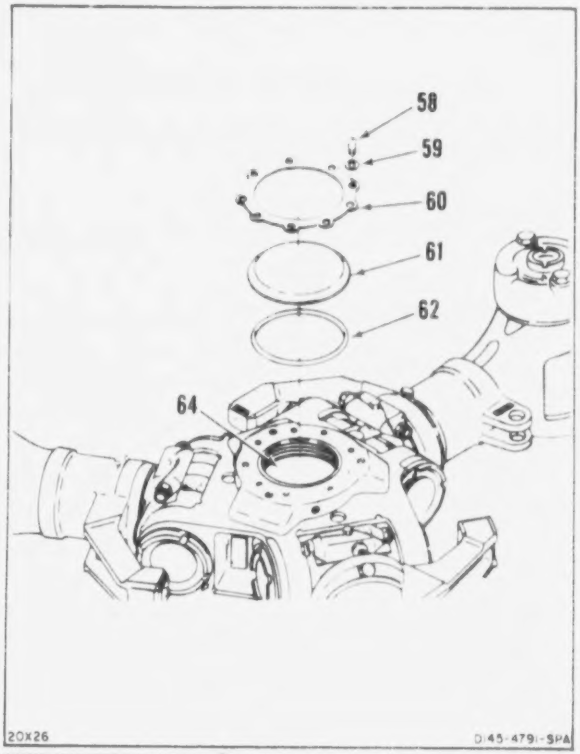
2-306 REMOVE AFT PYLON (AFT SHAFT INSTALLED) (Continued)

54 **Position** packing (62), **cover (61),** and retainer (60) in aft rotor shaft (64).

55 **Install nine screws (58),** and washers (59) in retainer (60).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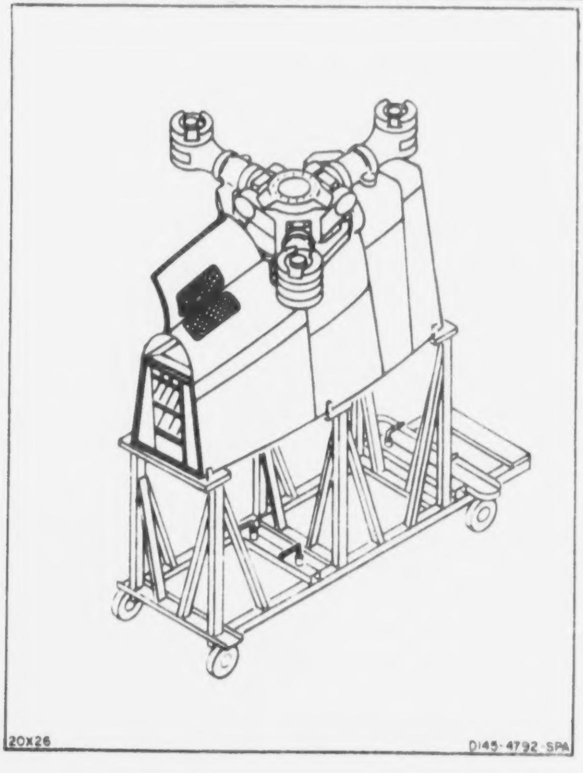
FOLLOW-ON MAINTENANCE:

None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END OF TASK

2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) 2-307

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Extension, 1/2-Inch Drive
- Aft Pylon Skid (T55)
- Aft Pylon Sling (T54)
- Hoist, Minimum Capacity 3,000 Pounds
- Container, Two Quart
- Crowfoot Socket Wrench, 7/8-Inch
- Crowfoot Socket Wrench, 1 1/4-Inch
- Crowfoot Socket Wrench, 1 1/2-Inch
- Open End Wrench, 1 1/8-Inch
- Open End Wrench, 1 1/4-Inch
- Open End Wrench, 1 1/2-Inch
- Ratchet, 1/2-Inch Drive
- Rope Guide Lines (4)
- Socket, 9/16-Inch, 1/2-Inch Drive
- Universal Joint, 1/2-Inch Drive
- Workstands (Side Bridge, Engine And Aft Pylon)
- Workstand, Three Step

Materials:

- Cloths (E135)
- Gloves (E186)
- Paper Tags (E264)
- Pencil (E271)

Parts:

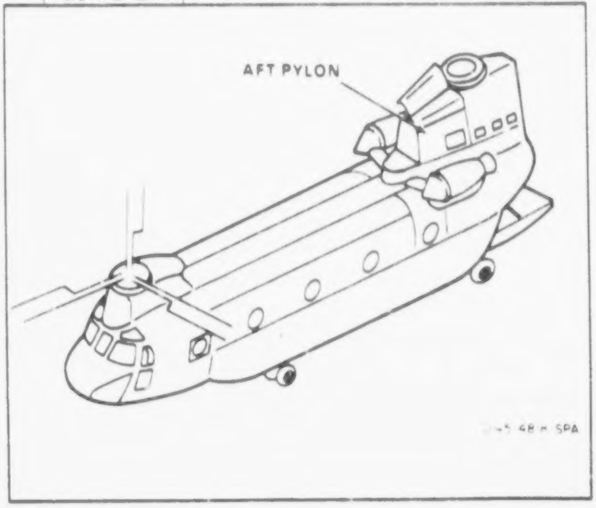
- Nuts BACN10B For Aft Pylon Skid (T16)
- Washers (US15306-8) (As Required) For Aft Pylon Skid (T55)

Personnel Required:

- Medium Helicopter Repairer (4)
- Medium Helicopter Repairer Inspector

Equipment Condition:

- Battery Disconnected (Task 1-39)
- Electrical Power Off
- Hydraulic Power Off
- No. 1 and No. 2 Flight Control Hydraulic System Depressurized (TM 55-1520-240-T)
- Utility Hydraulic System Depressurized (TM 55-2520-240-T)
- Leading Edge Hinged Fairing Removed (Task 2-279)
- Right Forward Crown Fairing Opened (Task 2-2)
- Rotary Wing Blades Removed (Task 5-64)
- Servocylinder Safety Blocks Installed (Task 11-28)
- Aft Rotary Wing Head Removed (Task 5-8)
- Aft Weather Protective Cover Removed (Task 5-136)
- Aft Swashplate Removed (Task 5-116)
- Drive Collar Removed (Task 5-100)
- Aft Shaft Removed (Task 6-57)
- No. 9 Drive Shaft Removed (Task 6-21)
- Aft Transmission Removed (Task 6-92)
- Pylon Lower Right Bellcrank Removed (Task 11-258)
- Pylon Left Upper Connecting Link Removed (Task 11-252)
- Pylon Left Aft Fuselage Connecting Link Disconnected (Task 11-244)
- Fire Extinguishers (Bottles) Removed (Task 12-23 or 12-24)
- Left and Right Pylon Access Panels Removed (Task 2-2)
- Left and Right Aft Transmission Access Covers Removed (Task 2-2)
- Left and Right Access Covers Removed (Task 2-2)
- Left and Right Hydraulic Module Inspector Access Covers Removed (Task 2-2)
- Left and Right Work Platforms Opened (Task 2-2)
- Left Engine Transmission Oil Cooler Removed (Task 6-214)



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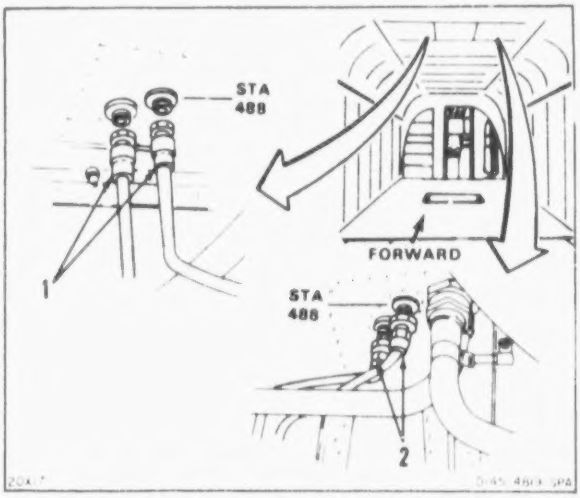
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

DISCONNECT HYDRAULIC TUBES AND DRAIN HOSE INSIDE AFT PYLON

1. Tag and **disconnect two hydraulic tubes (1)** at station 488, left side. Use cloths (E135) and container for spilled fluid.
2. Tag and **disconnect two hydraulic tubes (2)** at station 488, right side. Use cloths (E135) and container for spilled fluid.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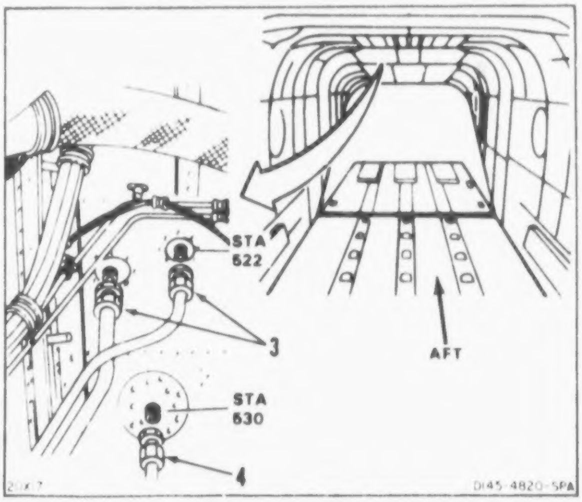
DI45-4819-SPA

3. Tag and **disconnect two hydraulic tubes (3)** at station 522, right side. Use cloths (E135) and container for spilled fluid.
4. Tag and **disconnect hydraulic tube (4)** at station 530, right side. Use cloths (E135) and container for spilled fluid.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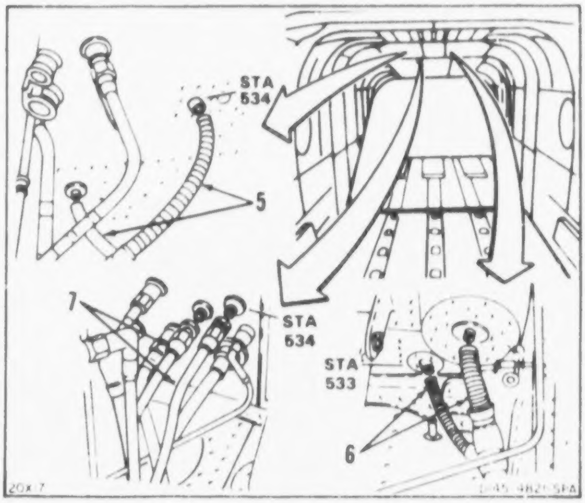
5. Tag and **disconnect two drain hoses (5)** at station 522, right side. Use cloths (E135) and container for spilled fluid.
6. Tag and **disconnect two drain hoses (6)** at station 533, left side. Use cloths (E135) and container for spilled fluid.
7. Tag and **disconnect eight hydraulic tubes (7)** at station 534. Use cloths (E135) and container for spilled fluid.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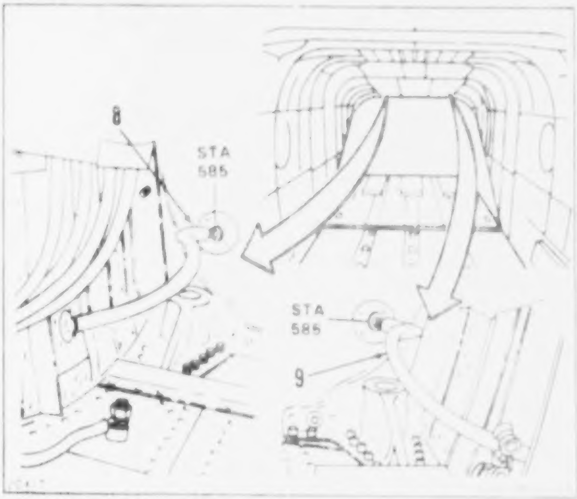
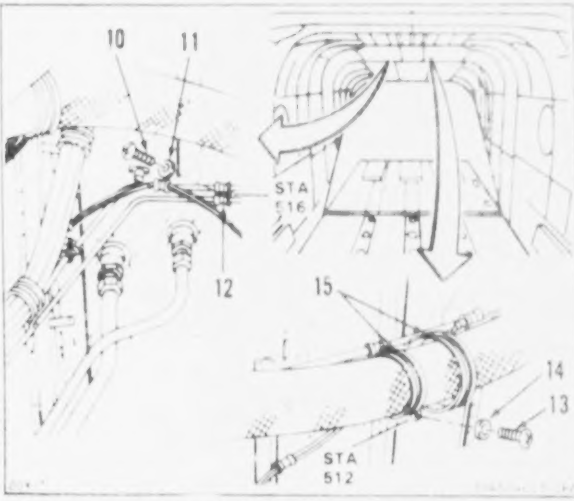
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

8. Tag and **disconnect drain hose (8)** at station 585, right side. Use cloths (E135) and container for spilled fluid.
9. Tag and **disconnect drain hose (9)** at station 585, left side. Use cloths (E135) and container for spilled fluid.

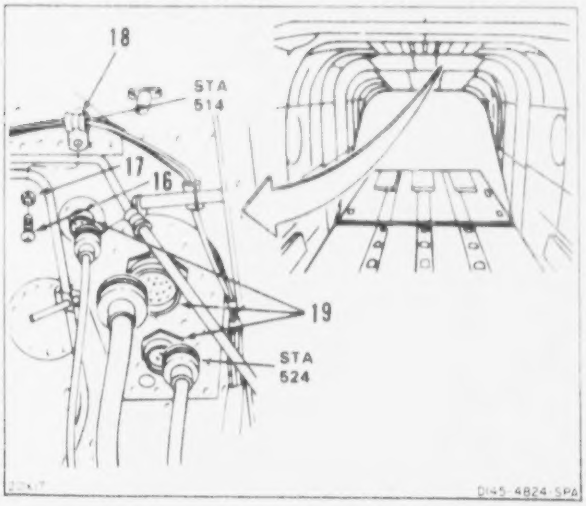


REMOVE CLAMPS AND DISCONNECT ELECTRICAL CONNECTORS INSIDE AFT PYLON

10. **Remove four** screws (10), washers (11), and **clamps (12)** at station 516.
11. **Remove two** screws (13), washers (14), and **clamps (15)** at station 512.



12. **Remove** screw (16), washer (17) and **clamp (18)** at station 514 left side.
13. Tag and **disconnect three electrical connectors (19)** at station 524, left side.



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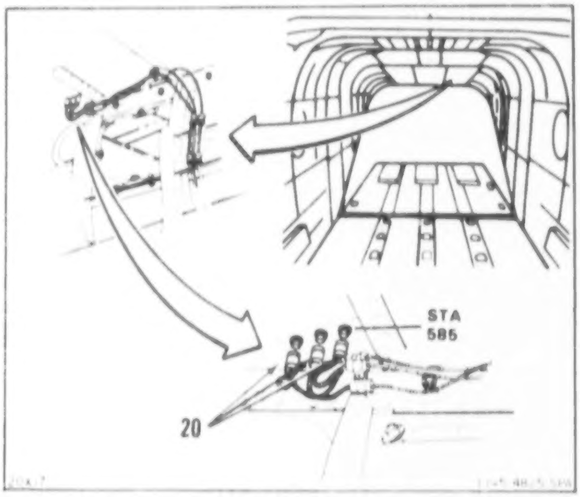
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

14. Tag and **disconnect three electrical connectors (20)** at station 585, left side.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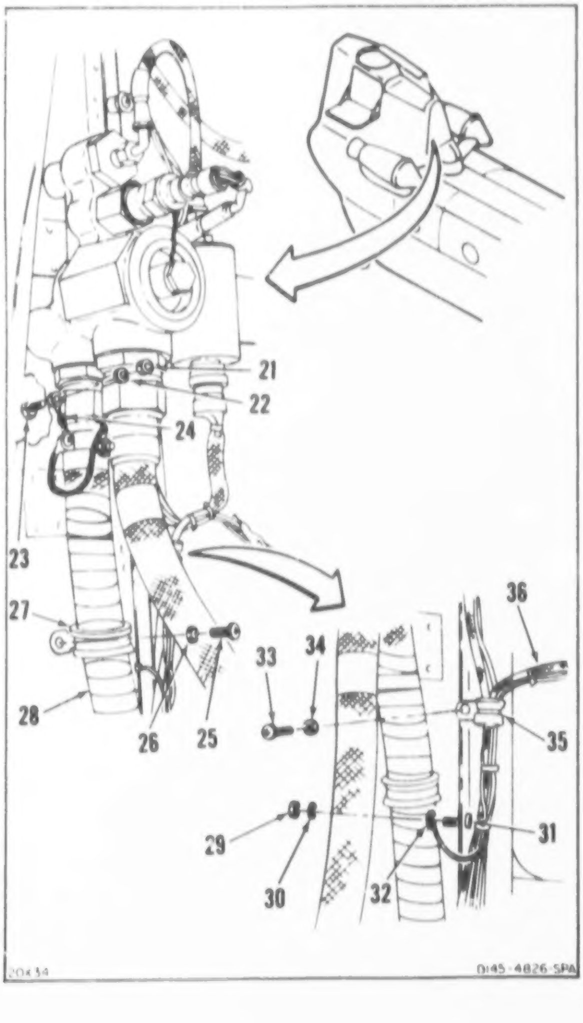
REMOVE CLAMPS AND DISCONNECT ELECTRICAL WIRES FORWARD OF AFT PYLON

15. Remove nut (21) and washer (22) from ground terminal (23). Tag and **disconnect electrical wire (24)** from terminal.
16. **Remove** screw (25), washer (26), and **clamp (27)** from engine oil hose (28).
17. Remove nut (29) and washer (30) from ground terminal (31). Tag and **disconnect electrical wire (32)** from terminal.
18. **Remove six** screws (33), washers (34), and **clamps (35)** from wire harness (36).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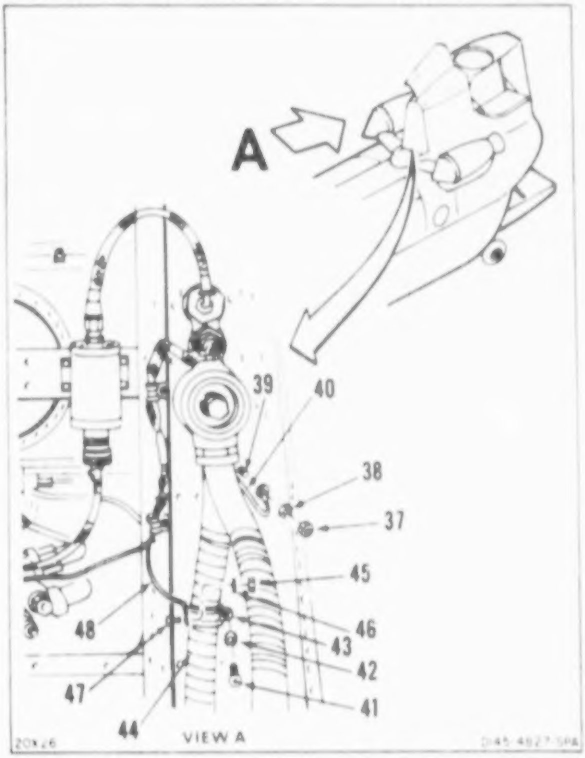
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

19. Remove nut (37) and washer (38) from ground terminal (39). Tag and **disconnect electrical wire (40)** from terminal.

20. **Remove** screw (41), washer (42), and **clamp (43)** from engine oil hose (44).

21. Remove nut (45) and washer (46) from ground terminal (47). Tag and **disconnect electrical wire (48)** from terminal.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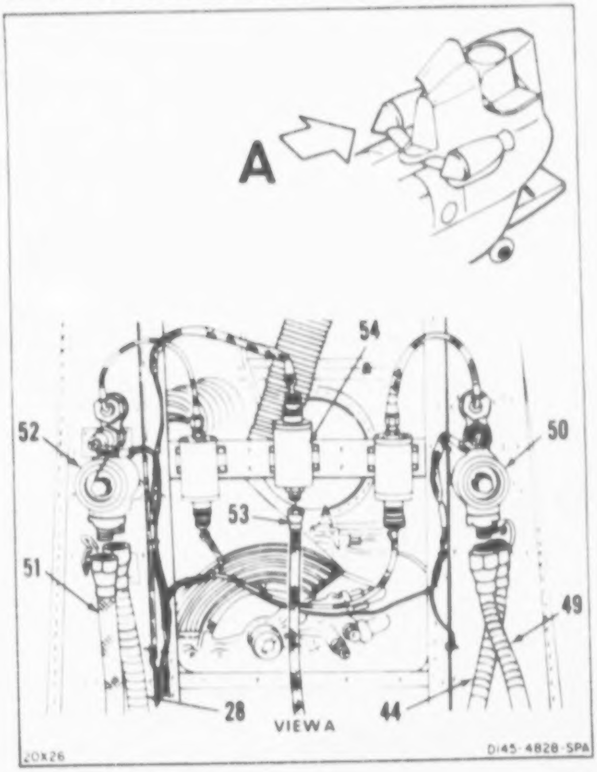
DISCONNECT OIL HOSES, ELECTRICAL CONNECTORS AND REMOVE WIRE HARNESS FORWARD OF AFT PYLON

22. Tag and **disconnect combining transmission oil hose (49) and engine oil hose (44)** from left strainer (50). Use cloths (E135) and container.

23. Tag and **disconnect combining transmission oil hose (51) and engine oil hose (28)** from right strainer (52). Use cloths (E135) and container.

24. Tag and **disconnect combining transmission oil hose (53)** from center transducer (54). Use cloths (E135) and container.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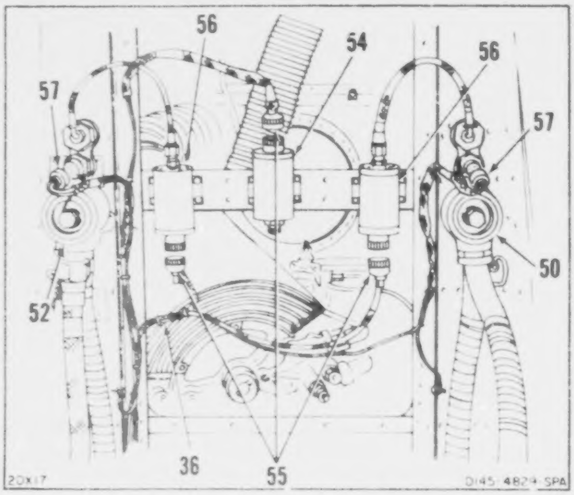
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

25 Tag and **disconnect three electrical connectors (55)** from transducers (54 and 56).

26 Tag and **disconnect two electrical connectors (57)** from left and right strainers (50 and 52).

27 Tag and **remove wire harness (36).**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D145-4829-SPA

INSTALL SLING (T54) ON AFT PYLON

28 **Position sling (T54) (58)** over aft pylon (59).

29 Remove pin (60) from forward cable terminal (61) and lifting eye (62).

30 **Position terminal (61) on forward pylon bracket (63) and install pin (60).**

31 Remove pin (64) from two aft cable terminals (65) and lifting eye (62).

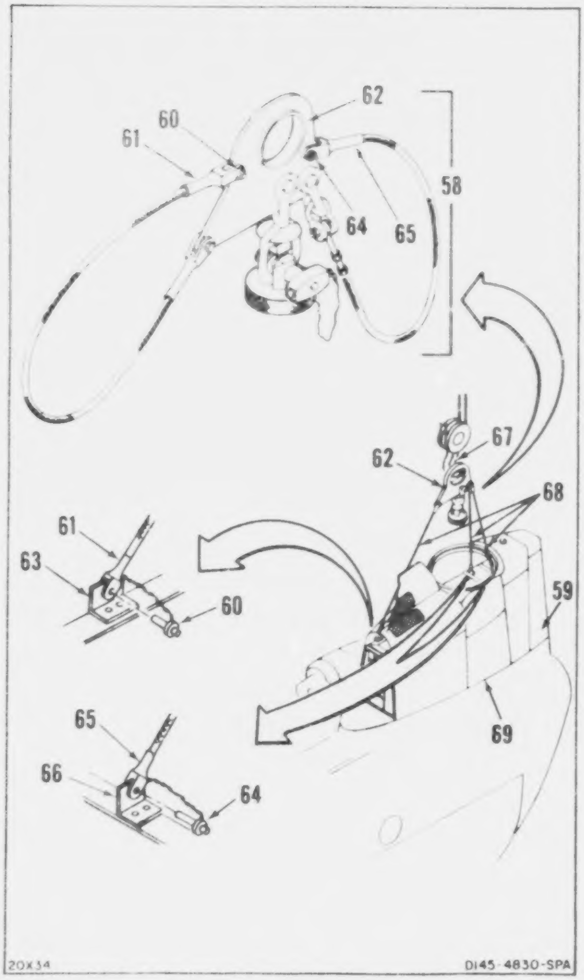
32 **Position two terminals (65) on aft pylon brackets (66) and install pin (64).**

CAUTION

Do not put tension on pylon when removing slack from cables.

33. **Install hoist hook (67)** through lifting eye (62). **Slowly remove slack from cables (68).**

34 Cut fillet seal (69) from between pylon and attaching structure.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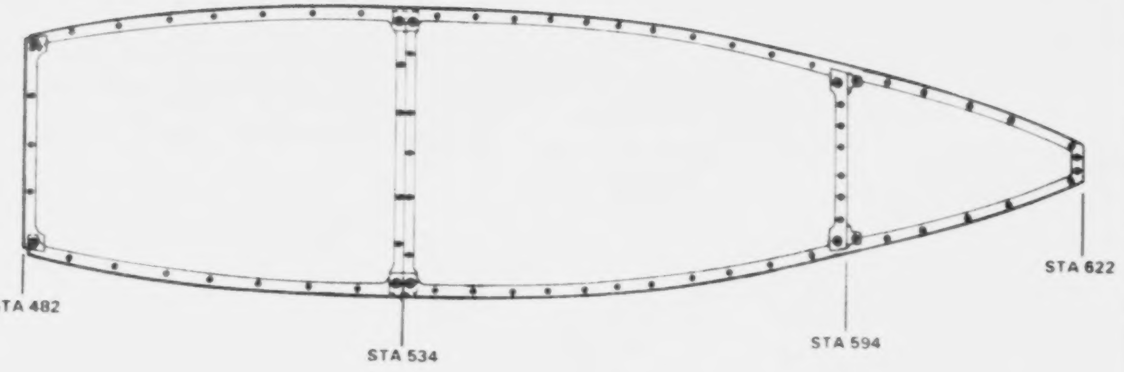
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

NOTE

Bolts attaching aft pylon differ in length at different locations. A cardboard template can be helpful for replacing bolts in correct locations. Pattern for aft pylon bolt template is shown below.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AFT PYLON BOLT TEMPLATE

42 X 26
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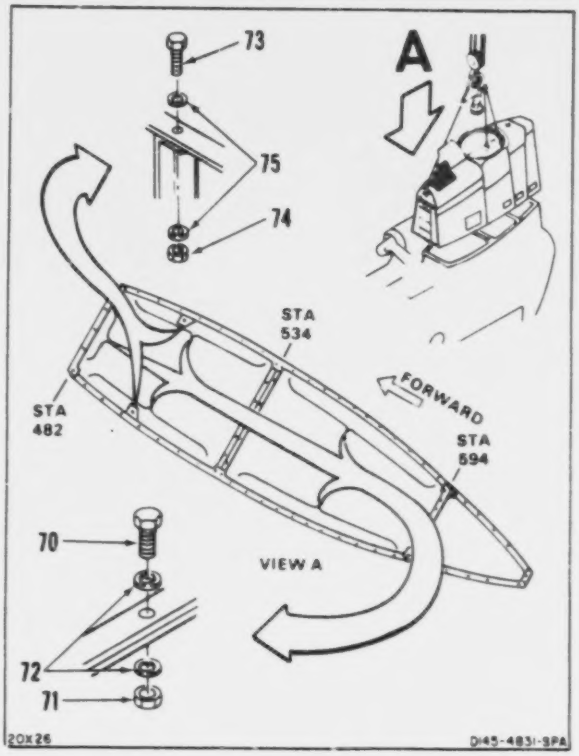
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

REMOVE MOUNTING BOLTS INSIDE AFT PYLON

35. Mark location and **remove 39 bolts (70),** nuts (71) and 78 washers (72). Use pencil (E271).
36. Mark location and **remove 12 bolts (73),** nuts (74), and 24 washers (75) (if installed). Use pencil (E271).


73
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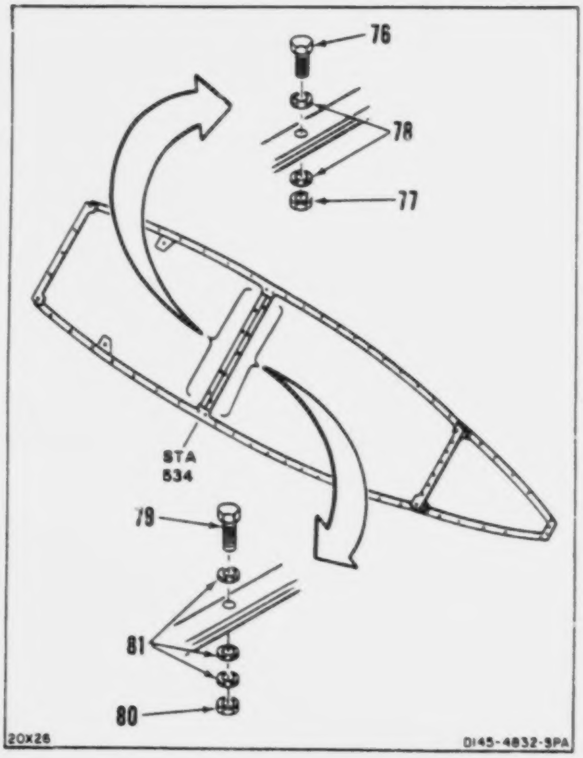
D145-4831-SPA

37. Mark location and **remove four bolts (76),** nuts (77), and eight washers (78). Use pencil (E271).
38. Mark location and **remove 5 bolts (79),** nuts (80), and 15 washers (81). Use pencil (E271).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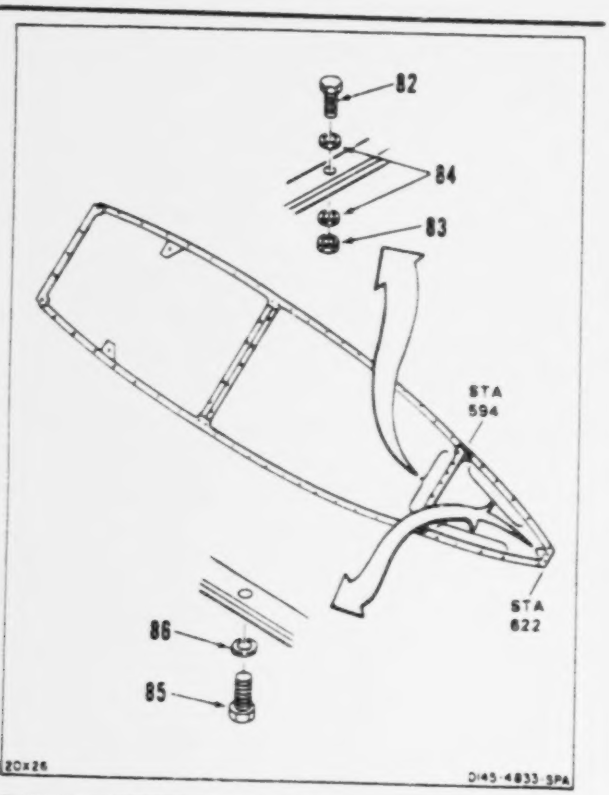
2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

39. Mark location and **remove 6 bolts (81),** nuts (82), and 12 washers (83). Use pencil (E271).
40. Mark location and **remove 12 bolts (84),** heads down and washers (85). Use pencil (E271).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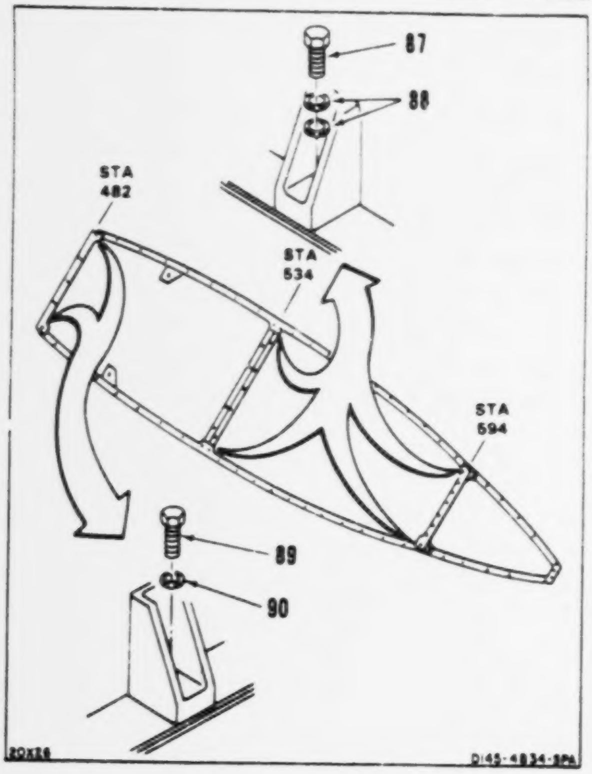
41. Mark location and **remove 8 bolts (86)** and 16 washers (87). Use pencil (E271).
42. Mark location and **remove two bolts (88)** and washers (89). Use pencil (E271).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INSPECT

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2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-307

REMOVE AFT PYLON

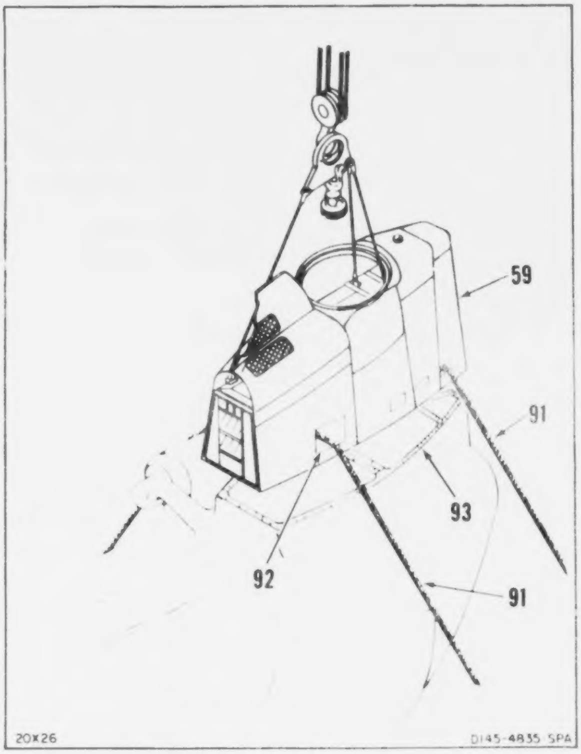
43. With aid of helpers, **attach four guide lines (91) through access cover holes (92)** in pylon (59). Use gloves (E186).

WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guidelines, and moved carefully to prevent injury to personnel or damage to equipment.

44. With aid of helpers, **hold guide lines (91)** to control pylon (59). **Slowly raise pylon just enough to break seal (93).** Use gloves (E186).

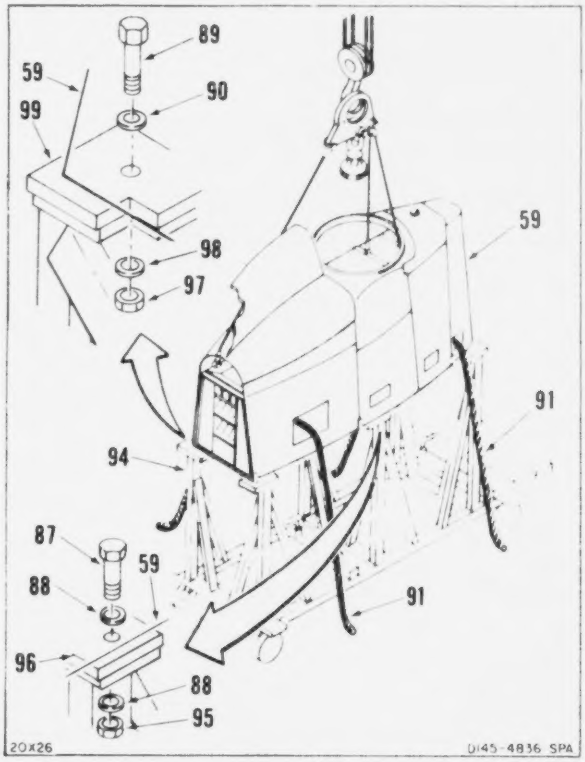
INSPECT



45. Position pylon (59) over skid (T55) (94). Make sure components on bottom of pylon will clear skid.

INSPECT

46. **Position pylon (59)** on skid (T55) (94).
47. **Install 8 bolts (86),** nuts (95), and 16 washers (88) through pylon (59) and skid mounting brackets (96).
48. Install two bolts (89), nuts (97), washers (90) and washers (US15306-8) (98) through pylon (59) and skid mounting brackets (99).
49. With aid of helpers, remove guide lines (91). Use gloves (E186).



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2-307 REMOVE AFT PYLON (AFT SHAFT REMOVED) (Continued)

REMOVE SLING (T54) FROM AFT PYLON

50. **Loosen cables (68) and remove hoist hook (67)** from lifting eye (62).

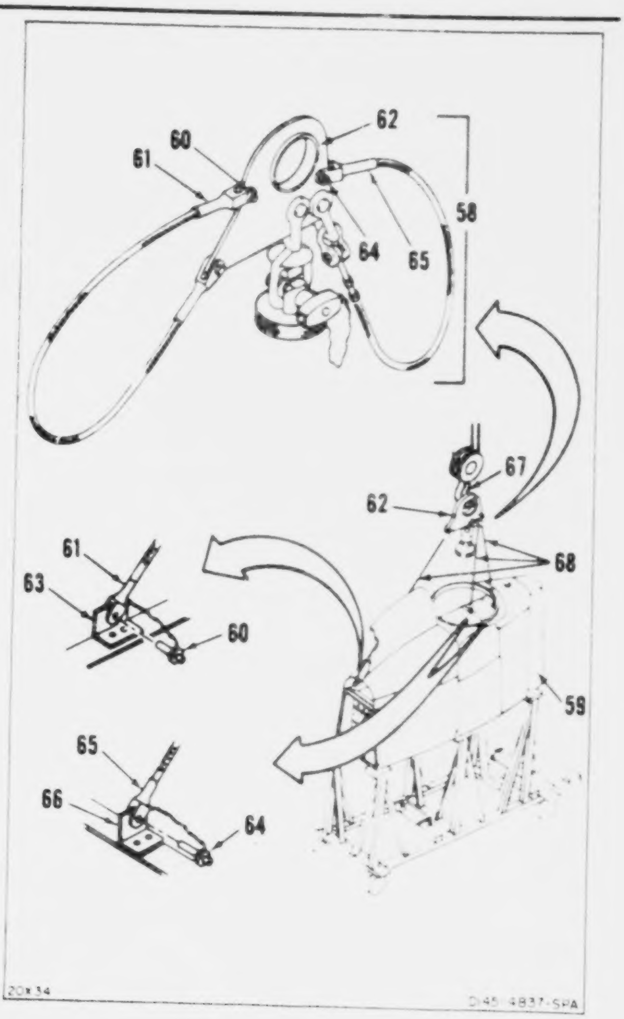
51. Remove two pins (64) from aft cable terminals (65) and aft pylon brackets (66).

52. **Position two terminals (65)** on lifting eye (62) and **install pin (64).**

53. Remove pin (60) from forward cable terminal (61) and forward pylon bracket (63).

54. **Position terminal (61)** on lifting eye (62) and **install pin (60).**

55. Remove sling (T54) (58).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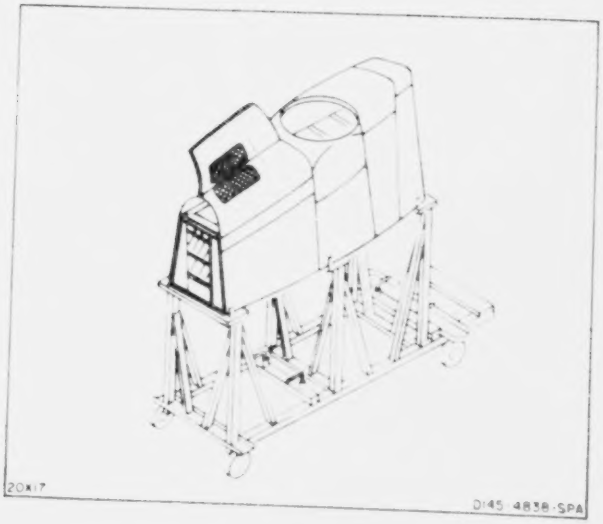
FOLLOW-ON MAINTENANCE

None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END OF TASK

2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) 2-308

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
- Extension, 1/2-Inch Drive
- Hoisting Eye (T32)
- Hoist, Minimum Capacity 4000 Pounds
- Container, Two Quart
- Crowfoot Socket Wrench, 7/8-Inch
- Crowfoot Socket Wrench, 1 1/4-Inch
- Crowfoot Socket Wrench, 1 1/2-Inch
- Open End Wrench, 1 1/8-Inch
- Open End Wrench, 1 1/4-Inch
- Open End Wrench, 1 1/2-Inch
- Ratchet, 1/2-Inch Drive
- Rope Guide Lines (4)
- Socket, 9/16-Inch, 1/2-Inch Drive
- Universal Joint, 1/2-Inch Drive
- Workstands (Side Bridge, Engine, and Aft Pylon)
- Workstand, Three Step

Materials:

- Cloths (E135)
- Gloves (E186)

Parts:

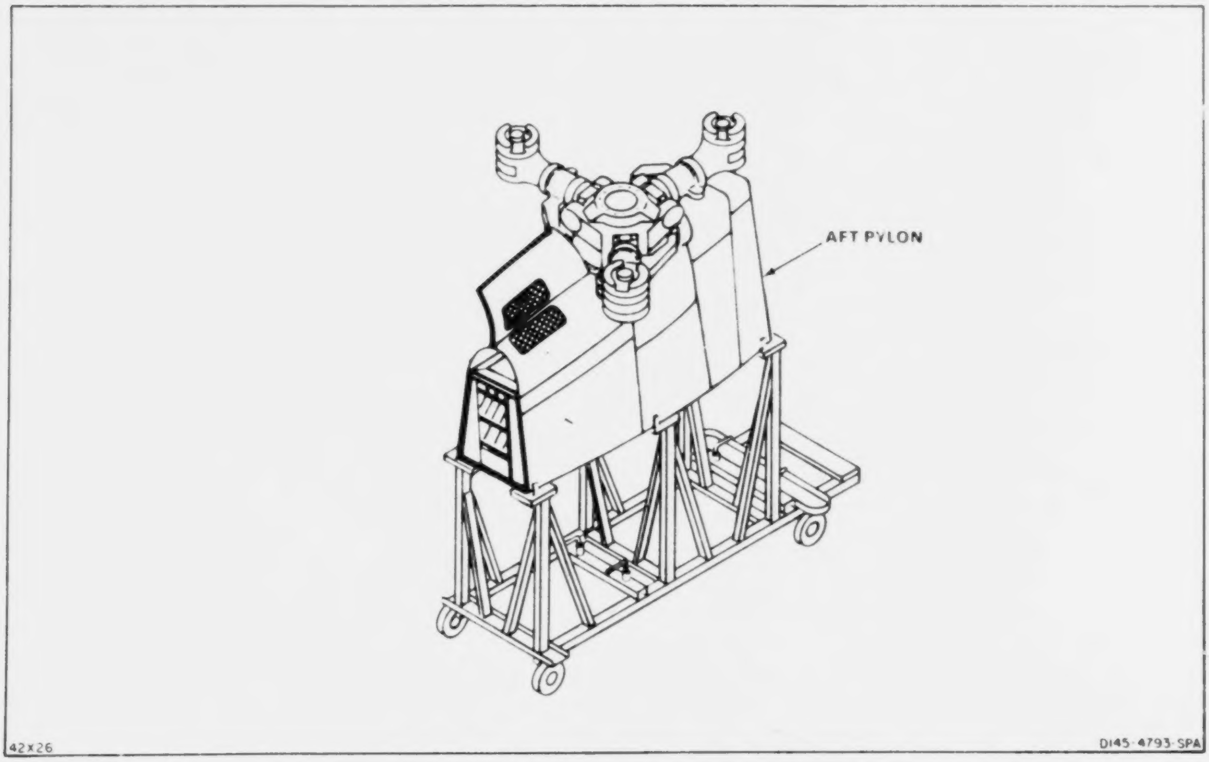
- Washers (VS15306-8) (As Required)

Personnel Required:

- Medium Helicopter Repairer (4)
- Medium Helicopter Repairer Inspector

References:

- TM 55-1520-240-23P
- Task 2-324



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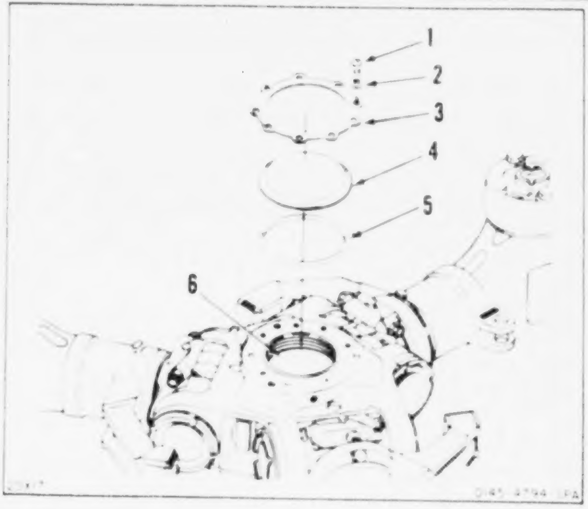
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308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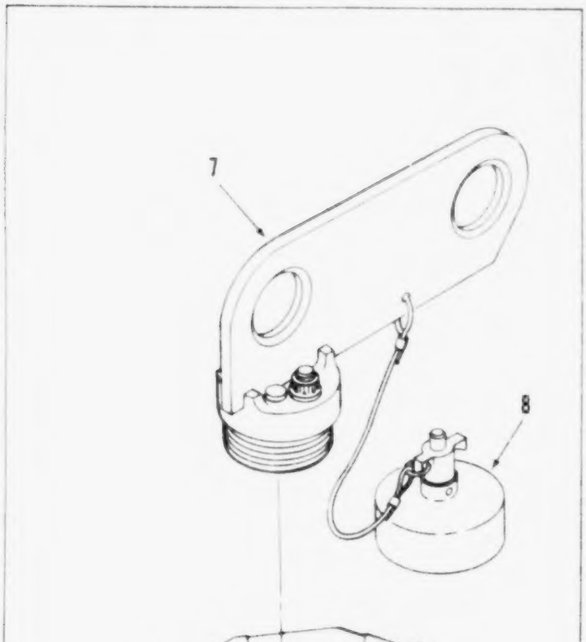
INSTALL SLING (T15) ON AFT PYLON

1. **Remove nine screws (1)** and washers (2) from retainer (3).
2. **Remove** retainer (3), **cover (4),** and packing (5) from aft rotor shaft (6).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3. **Position hoisting eye (T32) (7)** over aft shaft (6).
4. Remove cover (8) from hoisting eye (7).
5. **Install hoisting eye (7)** in aft rotor shaft (6).

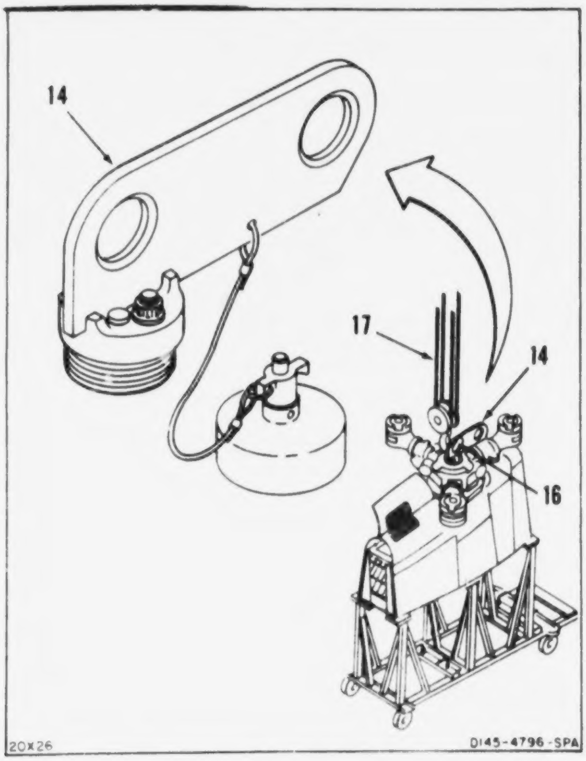
GO TO NEXT PAGE

2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

CAUTION

Do not put tension on pylon when removing slack from cable.

6 **Install hoist hook (16)** through lifting eye (14). **Slowly remove slack from cable (17).**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2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

INSTALL AFT PYLON ON HELICOPTER

7 **Remove two bolts (18),** nuts (19), and four washers (20) from pylon (21) and skid mounting brackets (22).

8 **Remove eight bolts (23),** nuts (24), and 16 washers (25) from pylon (21) and skid mounting brackets (26).

9 With aid of helpers, **attach four guide lines (27)** through access holes (28) in pylon (21). **Hold lines** to control pylon. Use gloves (E186).

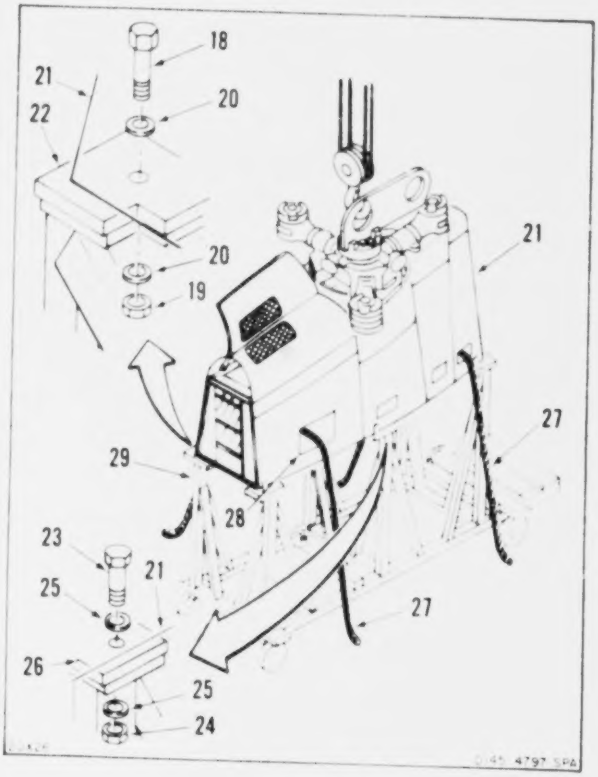
WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines, and moved carefully to prevent injury to personnel or damage to equipment.

10 Make sure components on bottom of pylon (21) clear skid (T55) (29). **Slowly raise pylon.**

INSPECT

11 **Apply sealant to mating surfaces of pylon (21)** (Task 2-324).



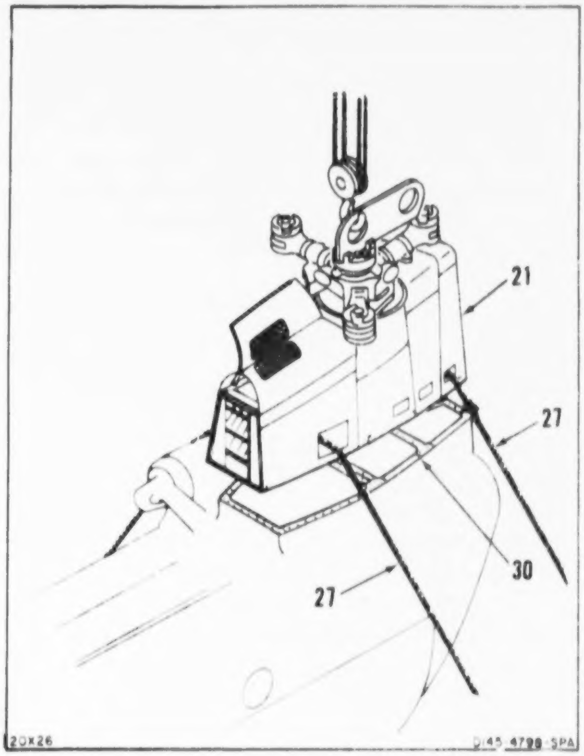
GO TO NEXT PAGE

2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

12. **Apply sealant** to mating surfaces of helicopter (30) (Task 2-324).
13. Make sure nut threads are serviceable and free of sealant.

INSPECT

14. With aid of helpers, **hold guide lines (27) to control pylon (21). Position pylon** on helicopter (30).



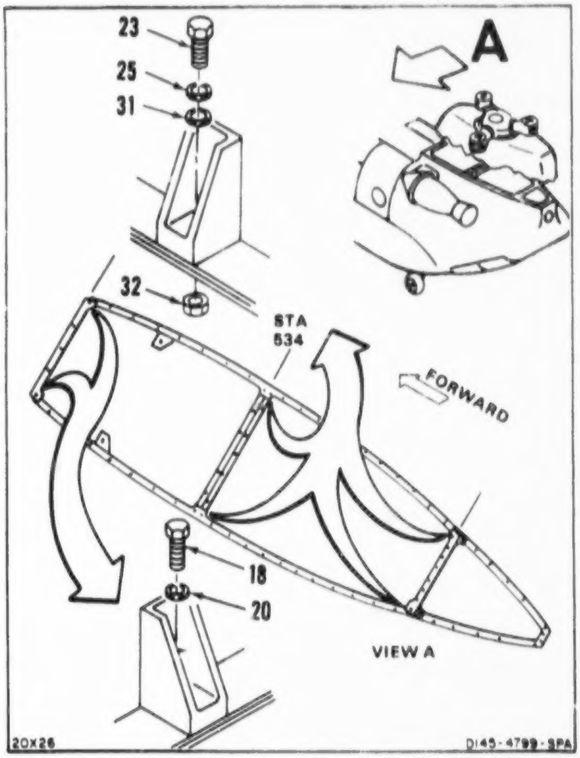
INSTALL MOUNTING BOLTS AND SEAL PYLON

15. **Install two bolts (18)** and washers (20). Torque bolts to 1070 inch-pounds.

NOTE

Up to two washers (VS15306-8) may be used under washer (MS20002C8) at stations 534 and 594 to prevent bolt from hitting barrel nut retainer.

16. **Install eight bolts (23),** washers (MS2002C8) (25) and washers (VS15306-8) (31). Make sure bolts are not hitting barrel nut retainer (32). If bolts are hitting barrel nut retainer, add washers (VS15306-8) as required. Torque bolts to 1070 inch-pounds.



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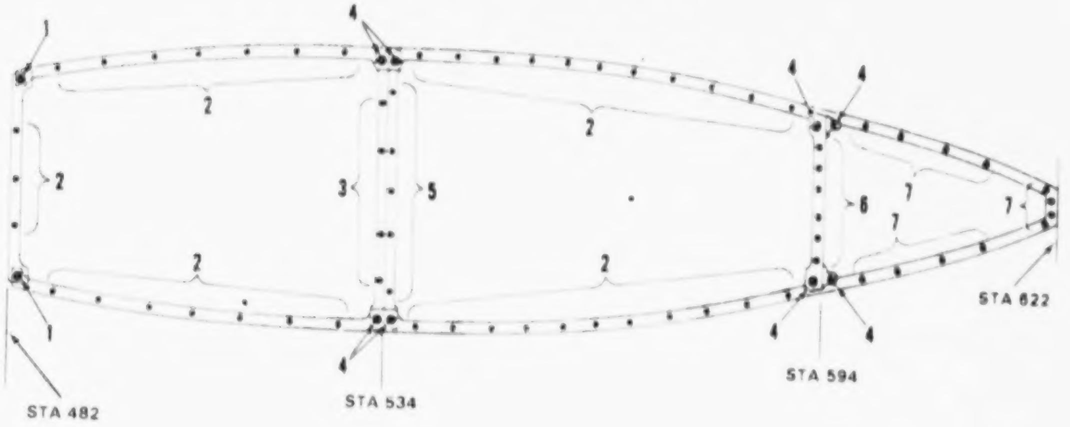
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

INDEX	ITEM AND QUANTITY	PART NUMBER	REMARKS
1	Bolt (2 ea)	NAS628-26	
	Washer (2 ea)	MS20002C8	
	Nut (2 ea)	2752-080 ·	
	Retainer (2 ea)	294055 Ret	
2	Bolt (39 ea)	AN4-6A	
	Washer (39 ea)	AN960D416L	1 under head
	Washer (39 ea)	AN960D416	1 under nut
	Nut (39 ea)	MS21045-4	
3	Bolt (4 ea)	AN4-6A	
	Washer (8 ea)	AN960D416	1 under head and 1 under nut
	Nut (4 ea)	MS21044N4	
4	Bolt (8 ea)	NAS628-28	At sta 534 and sta 594 add washer VS15306-8 (2 max.) under washer MS20002C8 as required to prevent bolt interfering with barrel nut retainer
	Washer	MS20002C8	
	Nut (8 ea)	2752-080	
	Retainer (8 ea)	294055	
5	Bolt (5 ea)	AN4-6A	
	Washer (15 ea)	AN960D416	1 under head and 2 under nut
	Nut (5 ea)	MS21045-4	
6	Bolt (6 ea)	AN4-5A	
	Washer (6 ea)	AN960D416L	1 under head
	Washer (6 ea)	AN960D416	1 under nut
	Nut (6 ea)	MS21045-4	
7	Bolt (12 ea)	AN4-5A	Bolts are installed with heads pointing down
	Washer (12 ea)	AN960D416	

AFT PYLON ATTACHING HARDWARE



1. BOLT GRIP LENGTH (LONGER OR SHORTER) MAY BE ADJUSTED BY ONE SIZE TO MEET REQUIREMENTS.
2. A TOTAL OF THREE WASHERS MAY BE USED FOR EACH BOLT-NUT COMBINATION. TWO FOR GRIP AND ONE FOR SURFACE PROTECTION.

0456

Aft Pylon Attaching Hardware

GO TO NEXT PAGE

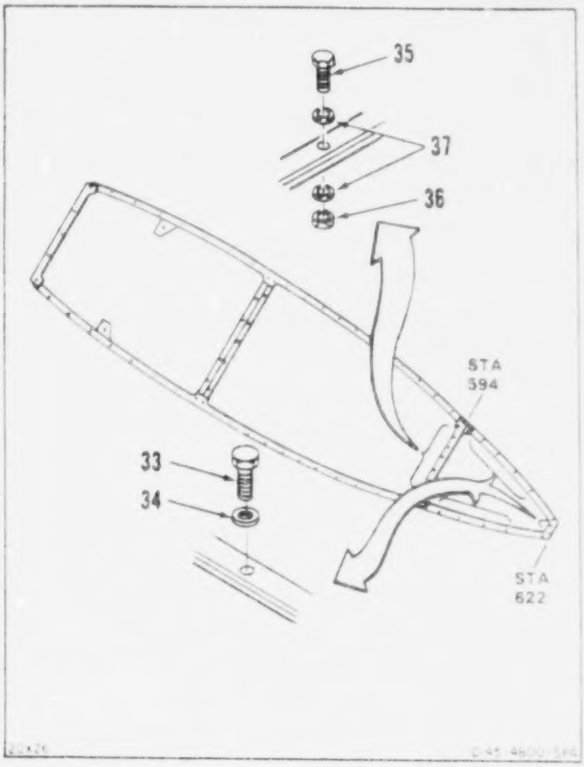
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

17. **Install 12 bolts (33),** heads up, and washers (34).

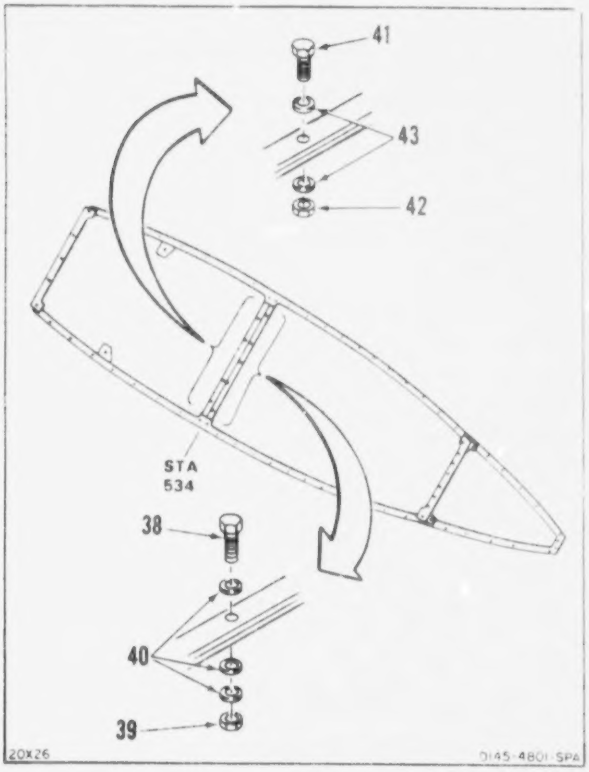
NOTE

Up to three washers may be used for each bolt and nut combination, one washer under head and two under nut.

18. **Install six bolts (35),** nuts (36), and 12 washers (37).


35
37
36
STA
594
33
34
STA
622
20X26
0145-4800-SPA

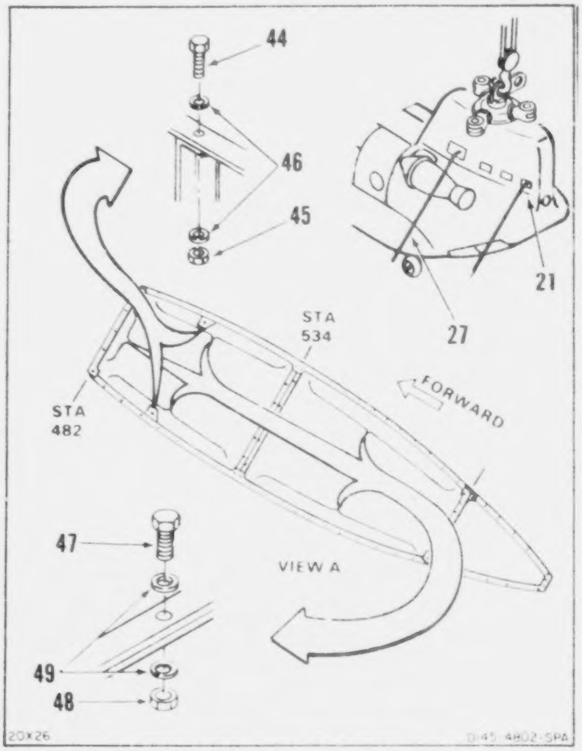
19. **Install five bolts (38),** nuts (39), and 15 washers (40).
20. **Install four bolts (41),** nuts (42), and eight washers (43).


41
43
42
STA
534
38
40
39
20X26
0145-4801-SPA

GO TO NEXT PAGE

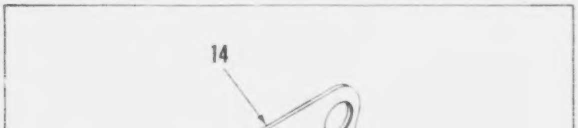
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

21. **Install 12 bolts (44),** nuts (45), and 24 washers (46) (if removed).
22. **Install 39 bolts (47),** nuts (48), and 78 washers (49).
23. With aid of helpers remove four guide lines (27) from pylon (21).
24. **Seal around base of pylon (21)** (Task 2-324).


44
46
45
21
27
STA 534
STA 482
FORWARD
47
VIEW A
49
48
20X26
0145-4802-SPA

REMOVE SLING FROM AFT PYLON

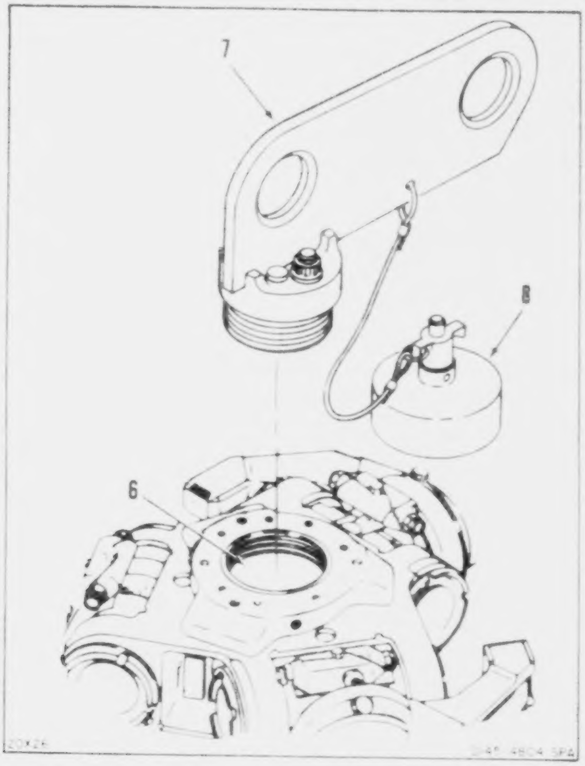
25. **Loosen cable (17) and remove hoist hook (16)** from hoisting eye (14).


14
17
FORWARD
16
2530

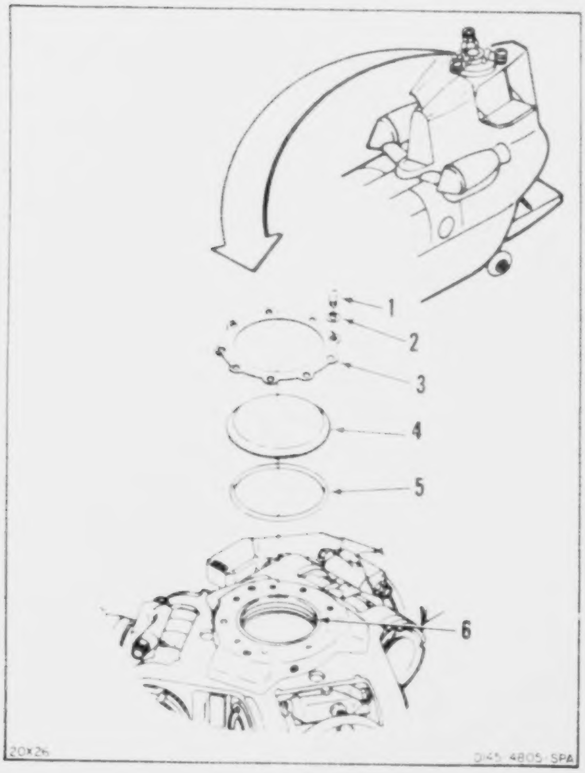
GO TO NEXT PAGE

2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

26. Remove hoisting eye (7) from aft rotor shaft (6).
27. Install cover (8) on hoisting eye (7)


7
8
6
20X26
DI45-4804-SPA

28. **Position** packing (5), **cover (4),** and retainer (3) on aft rotor shaft (6)
29. **Install nine screws (1)** and washers (2) in retainer (3).

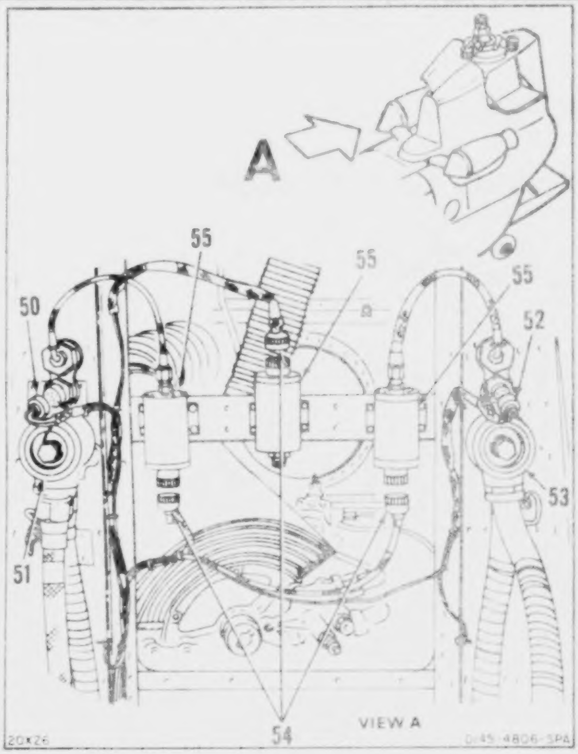

1
2
3
4
5
6
20X26
DI45-4805-SPA

GO TO NEXT PAGE

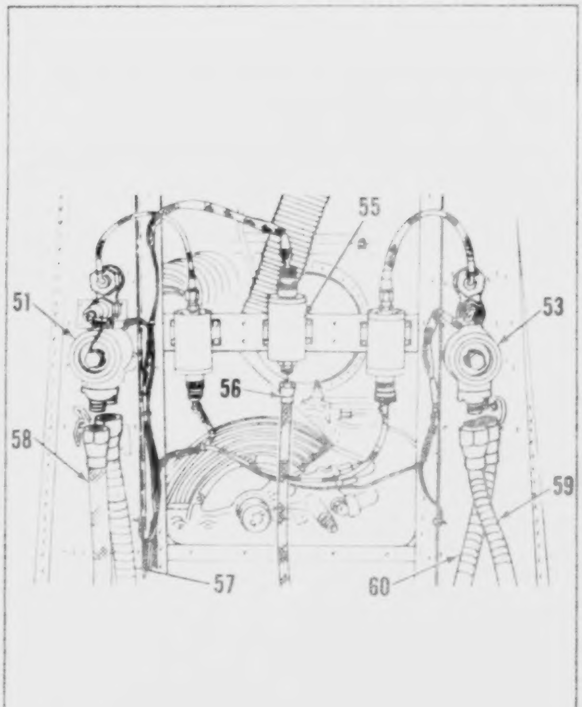
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

INSTALL WIRE HARNESS AND CONNECT ELECTRICAL CONNECTORS AND OIL HOSES FORWARD OF AFT PYLON

30. Remove tag and **connect electrical connector (50)** to right strainer (51).
31. Remove tag and **connect electrical connector (52)** to left strainer (53).
32. Remove tags and **connect three electrical connectors (54)** to transducers (55).



33. Remove tag and **connect combining transmission oil hose (56)** to center transducer (55). Use cloths (E135) and container for spilled oil.
34. Remove tags and **connect combining transmission oil hose (57) and engine oil hose (58)** to right strainer (51). Use cloths (E135) and container for spilled oil.
35. Remove tags and **connect combining transmission oil hose (59) and engine oil hose (60)** to left strainer (53). Use cloths (E135) and container for spilled oil.



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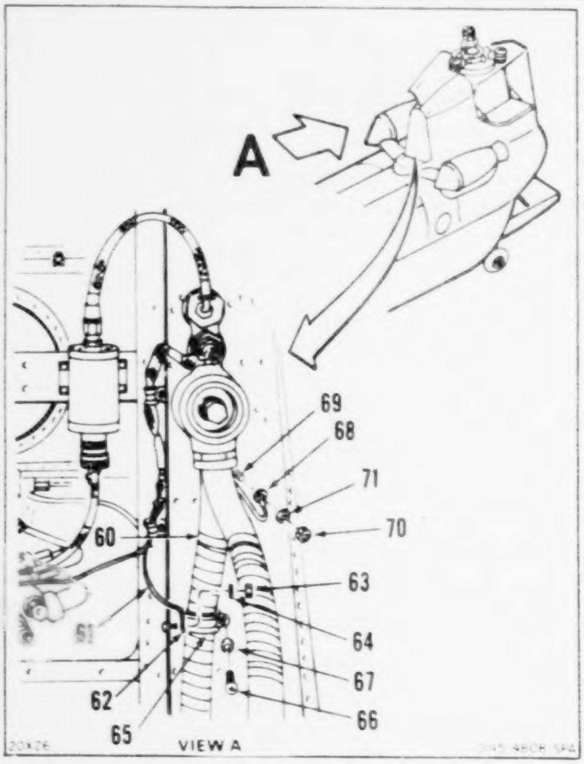
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

CONNECT ELECTRICAL WIRES AND INSTALL CLAMPS FORWARD OF PYLON

36. Remove tag and **position electrical wire (61)** on terminal (62). **Install nut (63)** and washer (64) on terminal.

37. **Position clamp (65)** on engine oil hose (60). **Install screw (66)** and washer (67).

38. Remove tag and **position electrical wire (68)** on terminal (69). **Install nut (70)** and washer (71) on terminal.

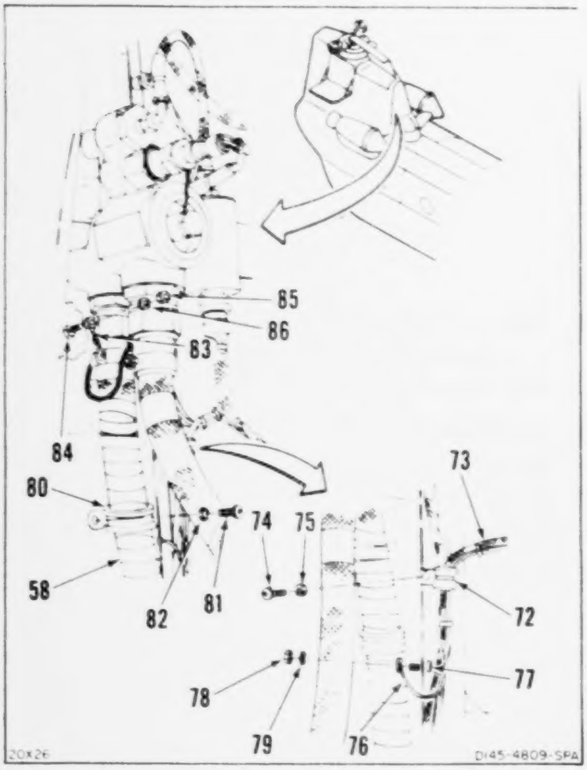

A
69
68
71
70
60
63
61
64
67
62
66
65
VIEW A
20X26
D145-4808-SPA

39. **Position six clamps (72)** on wire harness (73). Remove tag and **position wire harness. Install six screws (74)** and washers (75).

40. Remove tag and **position electrical wire (76)** on terminal (77). **Install nut (78)** and washer (79) on terminal.

41. **Position clamp (80)** on engine oil hose (58). **Install screw (81)** and washer (82).

42. Remove tag and **position electrical wire (83)** on terminal (84). **Install nut (85)** and washer (86) on terminal.


85
86
83
84
73
80
74
75
58
82
81
72
77
78
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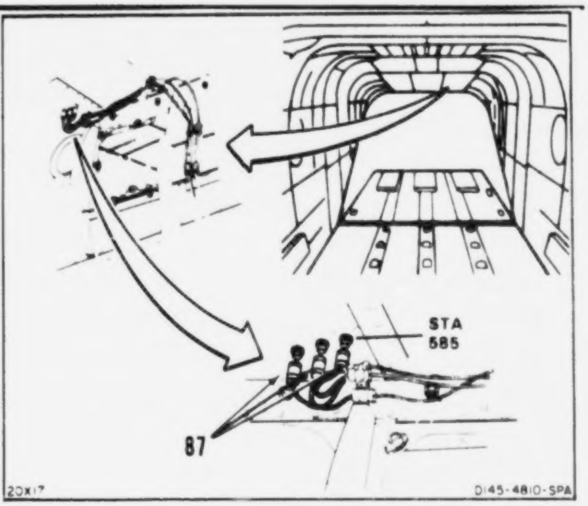
76
20X26
D145-4809-SPA

GO TO NEXT PAGE

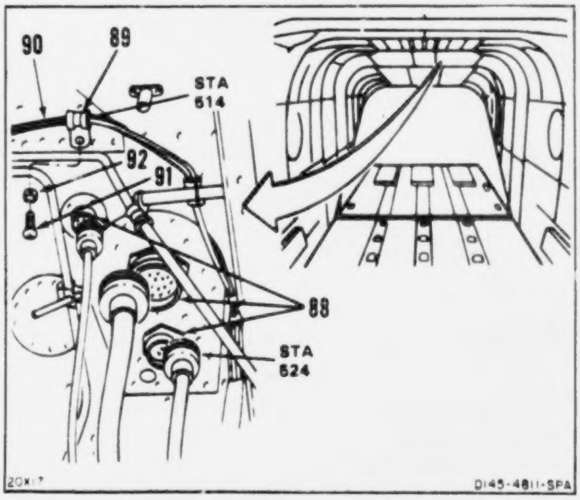
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

CONNECT ELECTRICAL CONNECTORS AND INSTALL CLAMPS INSIDE AFT PYLON

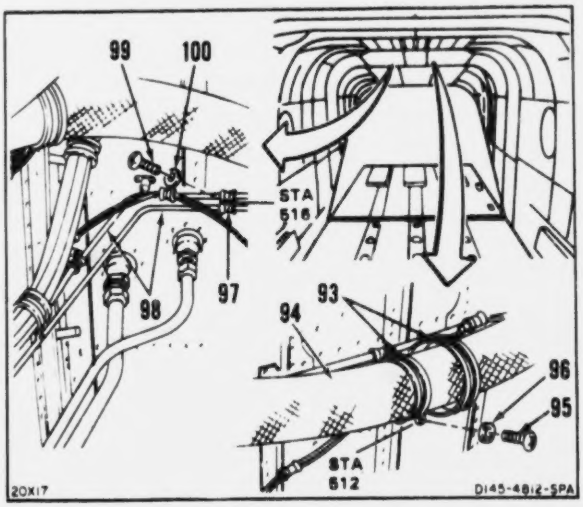
43. Remove tags and **connect three electrical connectors (87)** at station 585, left side.


STA
585
87
20X17
D145-4810-SPA

44. Remove tags and **connect three electrical connectors (88)** at station 524, left side.
45. **Position clamp (89)** on wire harness (90) at station 514, left side. **Install screw (91)** and washer (92).


90
89
STA
514
92
91
88
STA
524
20X17
D145-4811-SPA

46. **Position two clamps (93)** on fuel line (94) at station 512, left side. **Install two screws (95)** and washers (96).
47. **Position four clamps (97)** on two No. 2 boost pressure tubes (98) at station 516, right side. **Install four screws (99)** and washers (100).

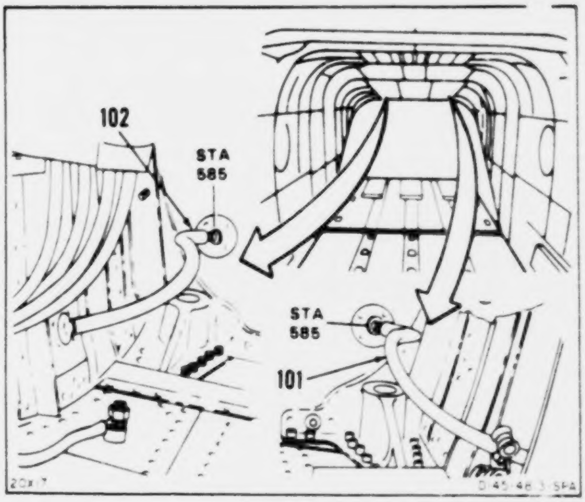

99
100
STA
516
97
98
93
94
96
95
STA
512
20X17
D145-4812-SPA

GO TO NEXT PAGE

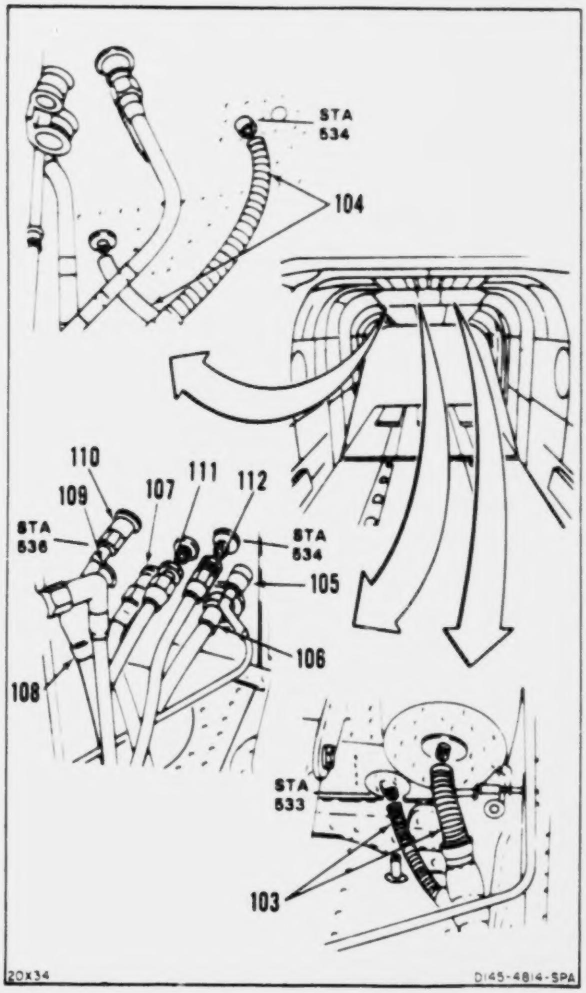
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

CONNECT DRAIN HOSES AND HYDRAULIC TUBES INSIDE AFT PYLON

48. Remove tag and **connect drain hose (101)** at station 585, left side. Use cloths (E135) for spilled fluid.
49. Remove tag and **connect drain hose (102)** at station 585, right side. Use cloths (E135) for spilled fluid.



50. Remove tags and **connect two drain hoses (103)** at station 533, left side. Use cloths (E135) for spilled fluid.
51. Remove tags and **connect two drain hoses (104)** at station 534, right side. Use cloths (E135) for spilled fluid.
52. Remove tags and **connect No. 2 suction tube (105) and utility pressure tube (106)** at station 534. Use cloths (E135) and container for spilled fluid.
53. Remove tags and **connect No. 2 boost pressure tube (107) and utility suction tube (108)** at station 536. Use cloths (E135) and container for spilled fluid.
54. Remove tags and **connect utility return tube (109) and PTU return tube (110)** at station 534. Use cloths (E135) and container for spilled fluid.
55. Remove tags and **connect No. 2 pump case drain (111) and utility pressure tube (112)** at station 534. Use cloths (E135) and container for spilled fluid.



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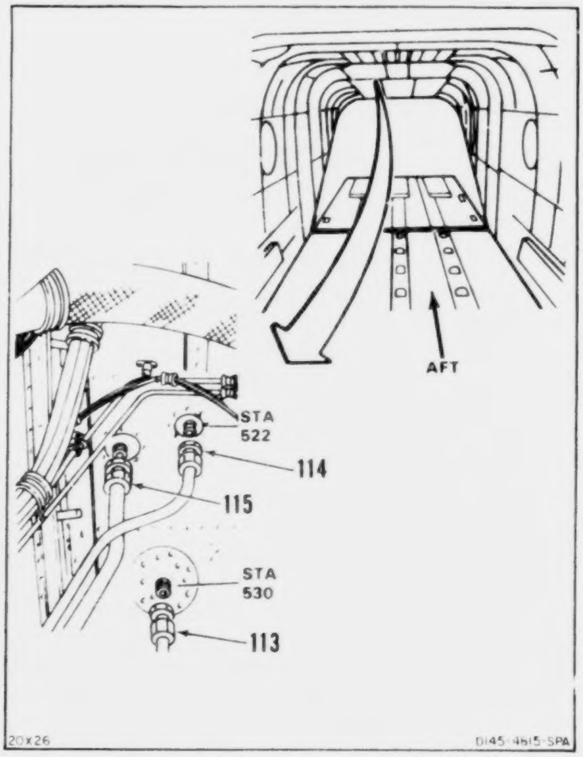
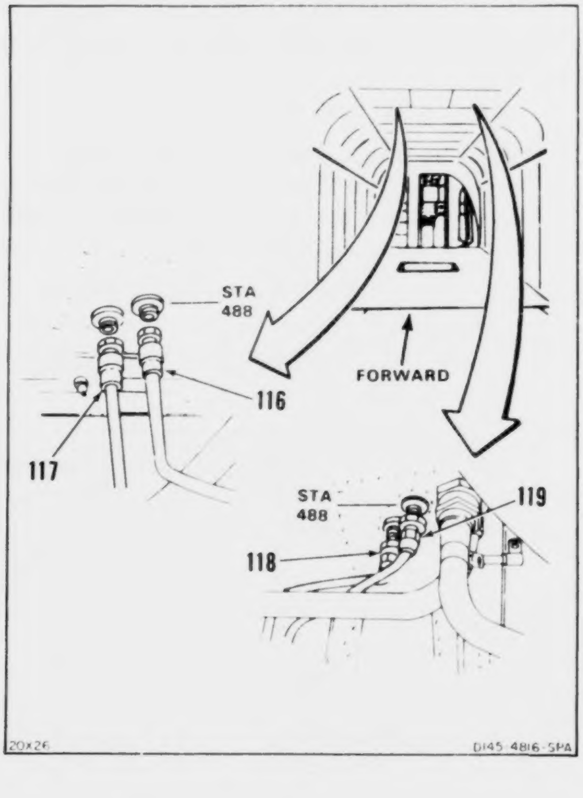
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

56. Remove tag and **connect No. 2 boost pressure tube (113)** at station 530, right side. Use cloth (E135) and container for spilled fluid.
57. Remove tags and **connect No. 2 boost pressure tube (114) and No. 2 boost return tube (115)** at station 522, right side. Use cloth (E135) and container for spilled fluid.


AFT
STA 522
114
115
STA 530
113
20X26
DI45-4815-SPA

58. Remove tags and **connect No. 2 boost pressure tube (116) and No. 2 boost return tube (117)** at station 488, right side. Use cloths (E135) and container for spilled fluid.
59. Remove tags and **connect No. 1 boost pressure tube (118) and No. 1 boost return tube (119)** at station 488, left side. Use cloth (E135) and container for spilled fluid.


STA 488
FORWARD
116
117
STA 488
119
118
20X26
DI45-4816-SPA

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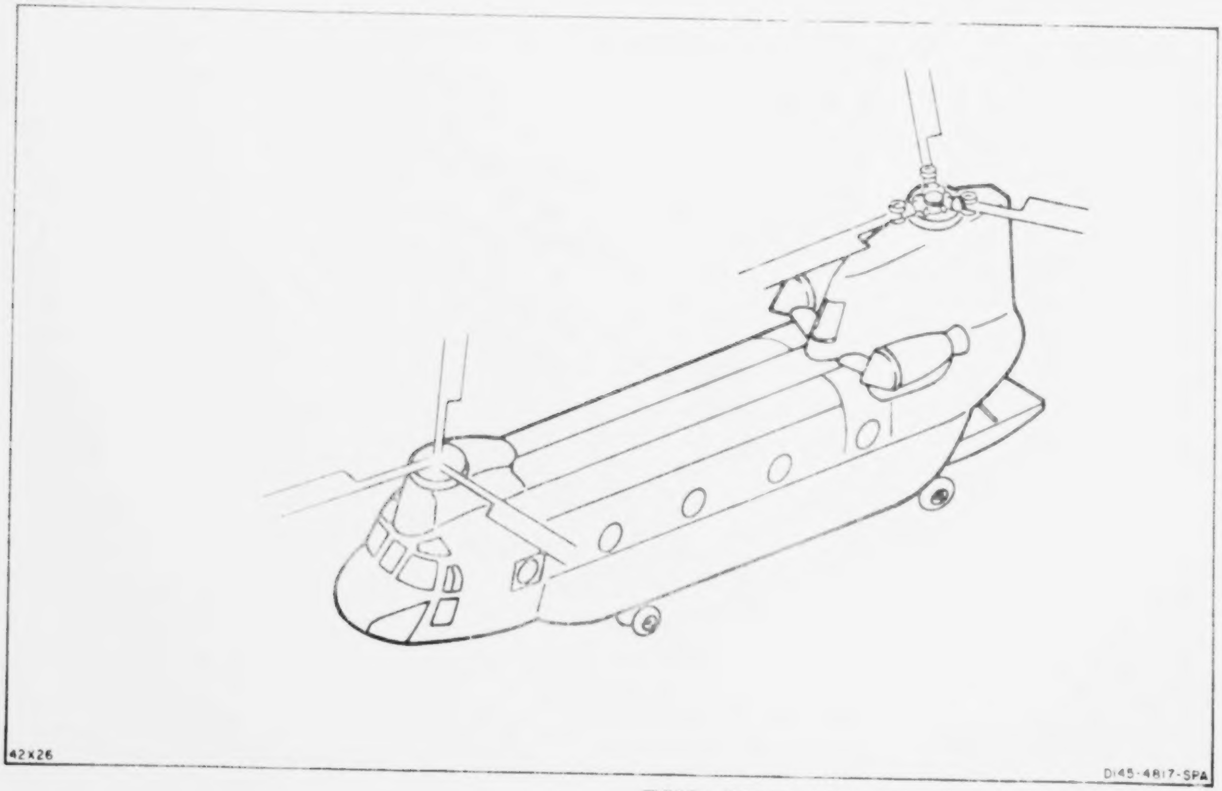
2-308 INSTALL AFT PYLON (AFT SHAFT INSTALLED) (Continued) 2-308

FOLLOW-ON MAINTENANCE

- Install fire extinguishers (bottles) (Task 12-33)
- Connect pylon left aft fuselage connecting link (Task 11-253)
- Install pylon left upper connecting link (Task 11-261)
- Install pylon, lower right bellcrank (Task 11-259)
- Install aft transmission (Task 6-97)
- Install rotary wing blades (Task 5-84)
- Remove servocylinder safety blocks (Task 11-29)
- Service utility hydraulic system (Task 1-62)
- Service No. 1 and No. 2 flight control hydraulic systems (Task 1-61 and 1-62)
- Perform rotary wing system phasing (Task 6-28)
- Install No. 9 drive shaft (Task 6-29)
- Perform functional test of flight controls (TM 55-1520-240-T)
- Close left and right side work platforms (Task 2-2)
- Install left and right side hydraulic module inspection access covers (Task 2-2)
- Install left and right side access covers (Task 2-2)
- Install left and right side aft transmission access covers (Task 2-2)
- Install left and right pylon removal access panels (Task 2-2)
- Close right forward crown fairing (Task 2-2)
- Install leading edge hinged fairing (Task 2-281)
- Install left engine transmission oil cooler (Task 6-215)



END OF TASK

2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) 2-309

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4692
Extension, 1/2-Inch Drive
Aft Pylon Sling (T15)
Hoist, Minimum Capacity 3,000 Pounds
Container, Two Quart
Crowfoot Socket Wrench, 1 1/4-Inch
Crowfoot Socket Wrench, 1 1/2-Inch
Open End Wrench, 1 1/8-Inch
Open End Wrench, 1 1/4-Inch
Open End Wrench, 1 1/2-Inch
Open End Wrench, 1 1/2-Inches
Ratchet, 1/2-Inch Drive
Rope Guide Lines (4)
Socket, 9/16-Inch, 1/2-Inch Drive
Universal Joint, 1/2-Inch Drive
Workstands (Side Bridge, Engine, and Aft Pylon)
Workstand, Three Step

Materials:

Cloths (E135)
Gloves (E186)

Parts:

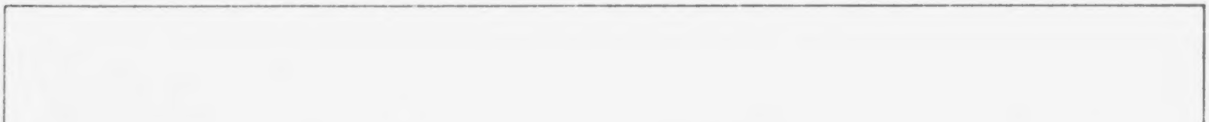
Washers (VS15306-8) (As Required)

Personnel Required:

67U10 Medium Helicopter Repairer (4)
67U20 Medium Helicopter Repairer
67U30 Inspector

References:

TM 55-1520-240-23P
Task 2-324



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2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

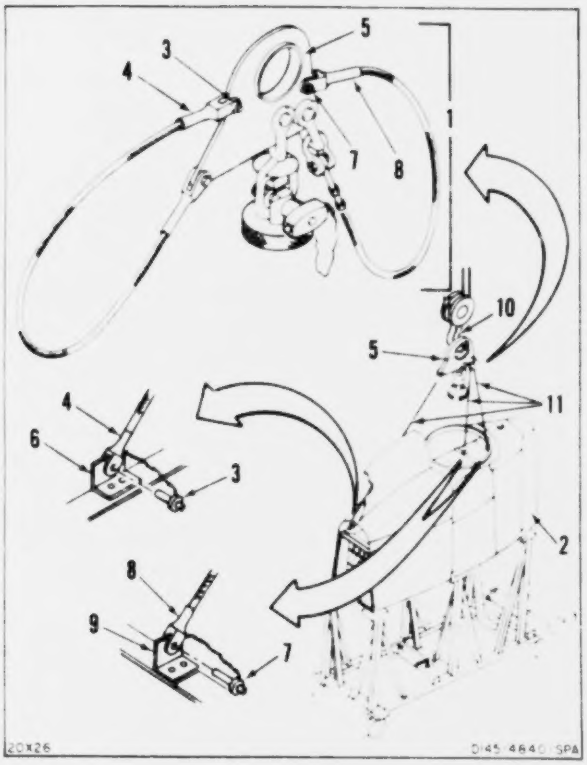
INSTALL SLING (T54) ON AFT PYLON

1. **Position sling (T54) (1)** on top of aft pylon (2).
2. Remove pin (3) from terminal (4) and lifting eye (5).
3. **Position forward cable terminal (4)** on forward pylon bracket (6) **and install pin (3).**
4. Remove pin (7) from two aft cable terminals (8) on lifting eye (5).
5. **Position two aft cable terminals (8)** on aft pylon brackets (9) **and install pins (7).**

CAUTION

Do not put tension on pylon when removing slack from cable.

6. **Install hoist hook (10)** through lifting eye (5). **Slowly remove slack from cables (11).**



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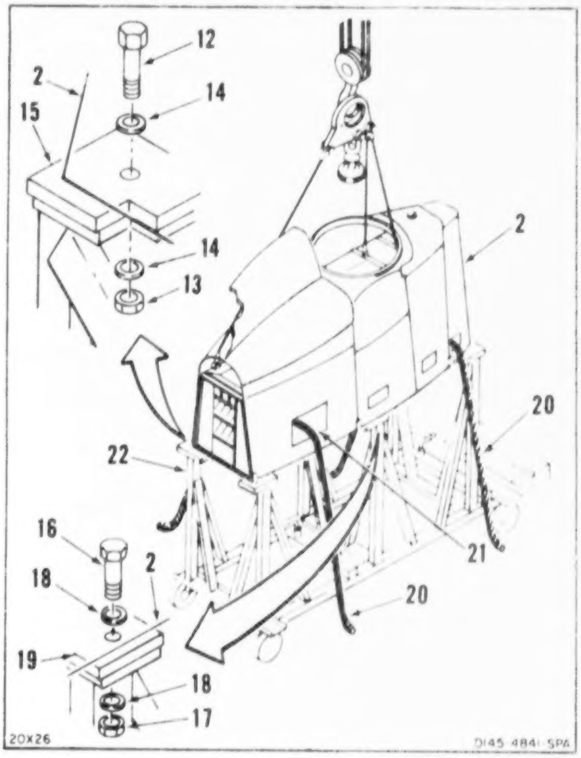
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

INSTALL AFT PYLON ON HELICOPTER



7. **Remove two bolts (12),** nuts (13), and four washers (14) from pylon (2) and skid mounting brackets (15).

8. **Remove 8 bolts (16),** nuts (17), and 16 washers (18) from pylon (2) and skid mounting brackets (19).

9. With aid of helpers, **attach four guide lines (20)** through access holes (21) in pylon (2). **Hold lines** to control pylon. Use gloves (E186).

WARNING

Pylon is heavy and can injure personnel if it swings or drops. Pylon must be supported by hoist, controlled by guide lines and moved carefully to prevent injury to personnel or damage to equipment.

10. Make sure components on bottom of pylon (2) clear skid (T16) (22). **Slowly raise pylon.**

INSPECT

11. **Apply sealant to mating surfaces of pylon (2)** (Task 2-324).

GO TO NEXT PAGE

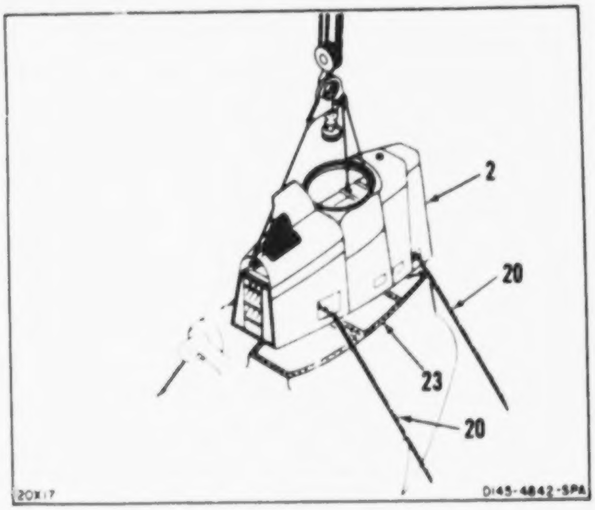
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

12. **Apply sealant to mating surfaces of helicopter (23)** (Task 2-324).

13. Make sure nut threads are serviceable and free of sealant.

INSPECT

14. With aid of helpers, **hold guide lines (20) to control pylon (2). Position pylon on helicopter (23).**


2
20
23
20
20X17
D145-4842-SPA

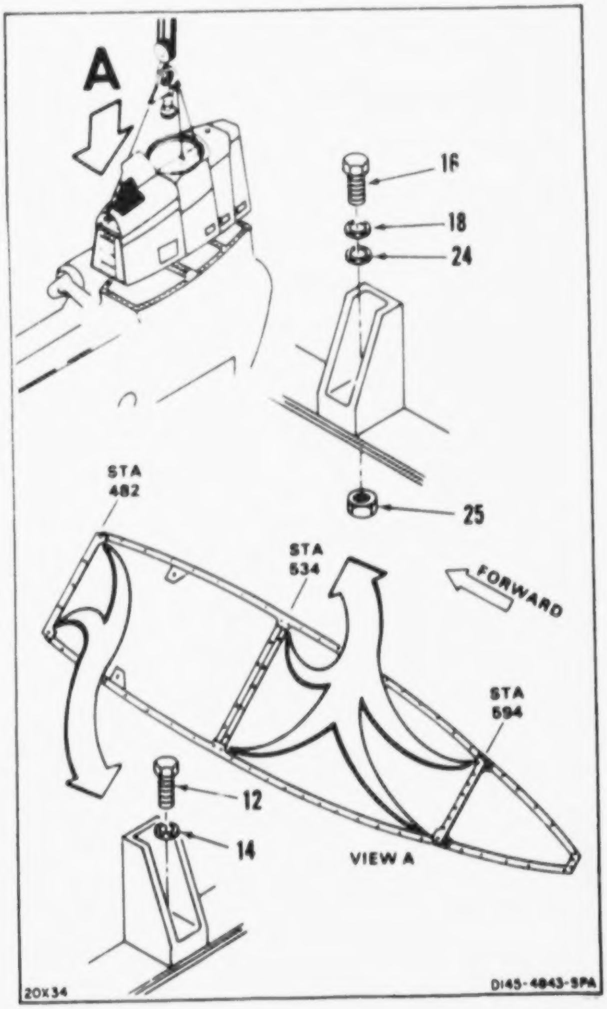
INSTALL MOUNTING BOLTS AND SEAL PYLON

15. **Install two bolts (12)** and washers (14). Torque bolts to 1070 pound-inches.

NOTE

Up to two washers (VS15306-8) may be used under washer (MS20002C8) at stations 534 and 594 to prevent bolt from hitting barrel nut retainer.

16. **Install eight bolts (16)** washers (MS20002C8) (18) and washers (VS15306-8) (24). Make sure bolts are not hitting barrel nut retainer (25). If bolts are hitting barrel nut retainers, add washers (VS15306-8), as required. Torque bolts to 1070 inch-pounds.

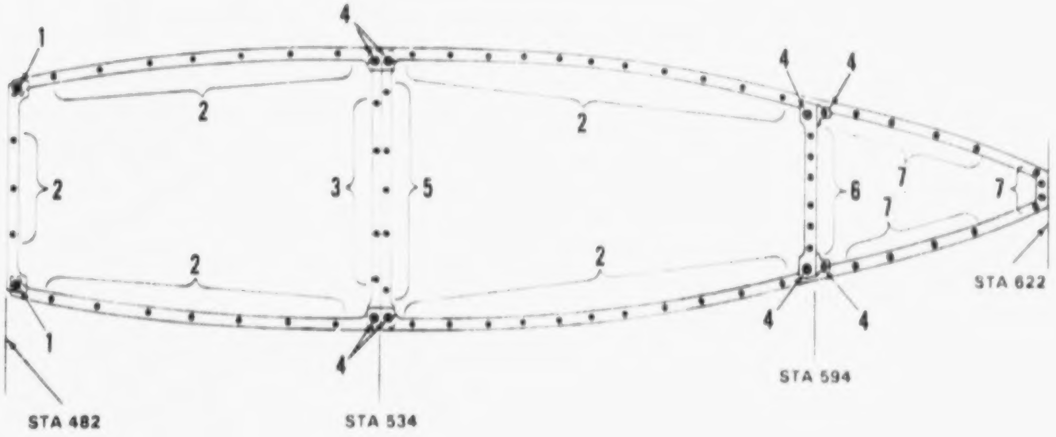

A
16
18
24
STA 482
25
STA 534
FORWARD
STA 594
12
14
VIEW A
20X34
D145-4843-SPA

GO TO NEXT PAGE

2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

INDEX	ITEM AND QUANTITY	PART NUMBER	REMARKS
1	Bolt (2 ea)	NAS628-26	
	Washer (2 ea)	MS20002C8	
	Nut (2 ea)	2752-080	
	Retainer (2 ea)	294055 Ret	
2	Bolt (39 ea)	AN4-6A	
	Washer (39 ea)	AN960D416L	1 under head
	Washer (39 ea)	AN960D416	1 under nut
	Nut (39 ea)	MS21045-4	
3	Bolt (4 ea)	AN4-6A	
	Washer (8 ea)	AN960D416	1 under head and 1 under nut
	Nut (4 ea)	MS21044N4	
4	Bolt (8 ea)	NAS628-28	At sta 534 and sta 594 add washer VS15306-8 (2 max.) under washer MS20002C8, as required to prevent bolt interfering with barrel nut retainer
	Washer	MS20002C8	
	Nut (8 ea)	2752-080	
	Retainer (8 ea)	294055	
5	Bolt (5 ea)	AN4-6A	
	Washer (15 ea)	AN960D416	1 under head and 2 under nut
	Nut (5 ea)	MS21045-4	
6	Bolt (6 ea)	AN4-5A	
	Washer (6 ea)	AN960D416L	1 under head
	Washer (6 ea)	AN960D416	1 under nut
	Nut (6 ea)	MS21045-4	
7	Bolt (12 ea)	AN4-5A	Bolts are installed with heads pointing down
	Washer (12 ea)	AN960D416	

AFT PYLON ATTACHING HARDWARE



1 BOLT GRIP LENGTH (LONGER OR SHORTER) MAY BE ADJUSTED BY ONE SIZE TO MEET REQUIREMENTS

2 A TOTAL OF THREE WASHERS MAY BE USED FOR EACH BOLT NUT COMBINATION. TWO FOR GRIP AND ONE FOR SURFACE PROTECTION

Aft Pylon Attaching Hardware

GO TO NEXT PAGE

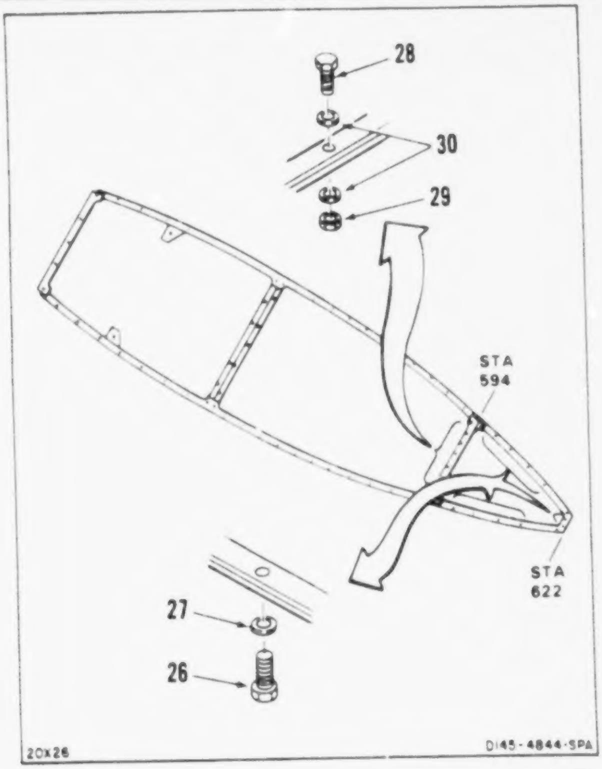
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

17. **Install 12 bolts (26)** heads down and washers (27).

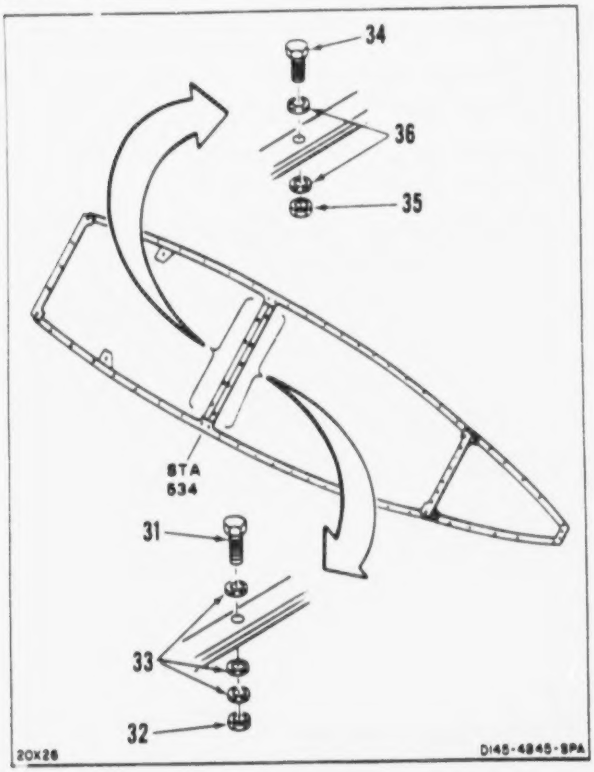
NOTE

Up to three washers may be used for each bolt and nut combination: one washer under head and two under nut.

18. **Install 6 bolts (28),** nuts (29), and 12 washers (30).


28
30
29
STA
594
STA
622
27
26
20X26
D145-4844-SPA

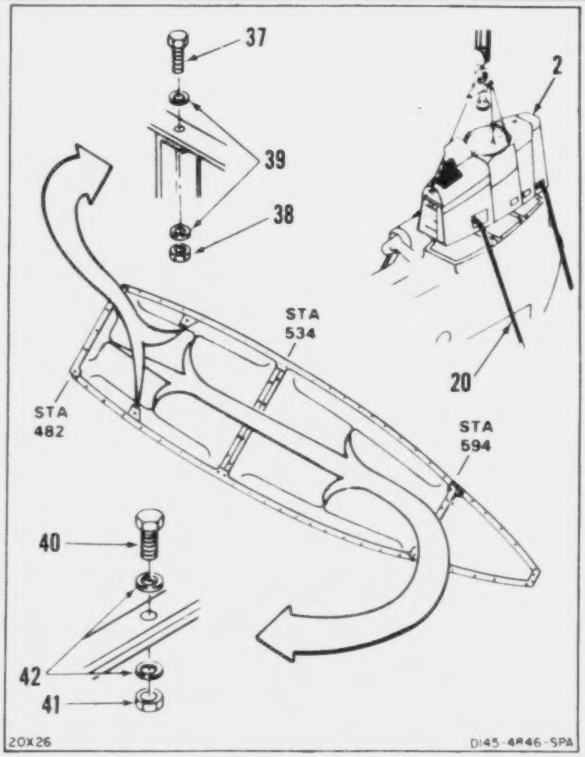
19. **Install 5 bolts (31),** nuts (32), and 15 washers (33).
20. **Install four bolts (34),** nuts (35), and eight washers (36).


34
36
35
STA
634
31
33
32
20X26
D145-4845-SPA

GO TO NEXT PAGE

2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

21. **Install 12 bolts (37),** nuts (38), and 24 washers (39) (if removed).
22. **Install 39 bolts (40),** nuts (41), and 78 washers (42).
23. With aid of helpers remove four guide lines (20) from pylon (2).
24. **Seal around base of pylon (2)** (Task 2-324).


37
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STA 534
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STA 482
STA 594
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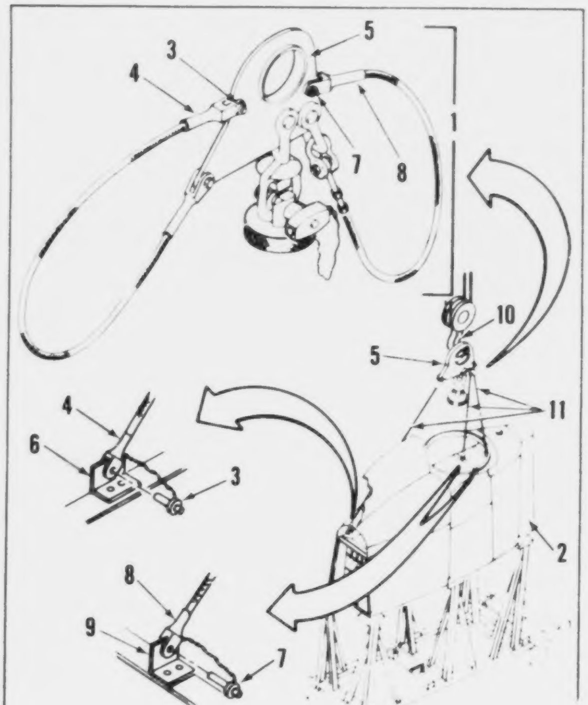
42
41
20X26
D145-4846-SPA

REMOVE SLING (T54) FROM AFT PYLON

25. **Loosen cable (11) and remove hoist hook (10)** from lifting eye (5).
26. Remove pin (7) from two aft cable terminals (8) on aft pylon brackets (9).
27. **Position two aft cable terminals (8)** on lifting eye (5) **and install pin (7).**
28. Remove pin (3) from forward cable terminal (4) on forward pylon bracket (6).
29. **Position forward cable terminal (4)** on lifting eye (5) **and install pin (3).**
30. **Remove sling (T54) (1)** from pylon (2).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1
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8
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11
4
6
3
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9
7
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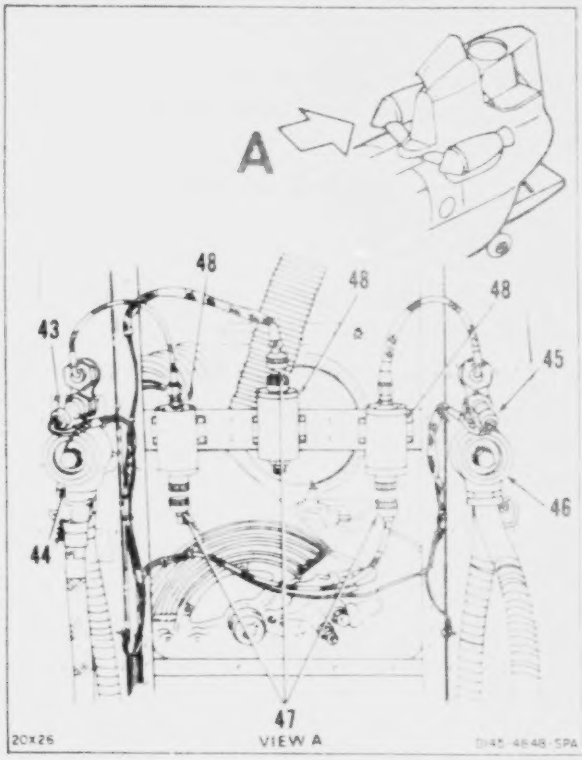
D145-4847-SPA

GO TO NEXT PAGE

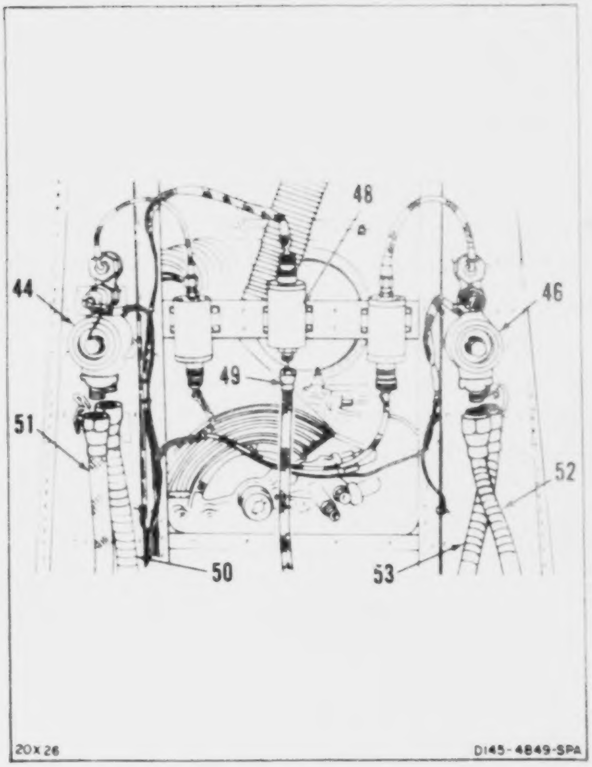
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

INSTALL WIRE HARNESS AND CONNECT ELECTRICAL CONNECTORS AND OIL HOSES FORWARD OF PYLON

31. Remove tag and **connect electrical connector (43)** to right strainer (44).
32. Remove tag and **connect electrical connector (45)** to left strainer (46).
33. Remove tags and **connect three electrical connectors (47)** to transducers (48).



34. Remove tag and **connect combining transmission oil hose (49)** to center transducer (48). Use cloths (E135) and container for spilled fluid.
35. Remove tags and **connect combining transmission oil hose (50) and engine oil hose (51)** to right strainer (44). Use cloths (E135) and container for spilled fluid.
36. Remove tags and **connect combining transmission oil hose (52) and engine oil hose (53)** to left strainer (46). Use cloth (E135) and container for spilled fluid.



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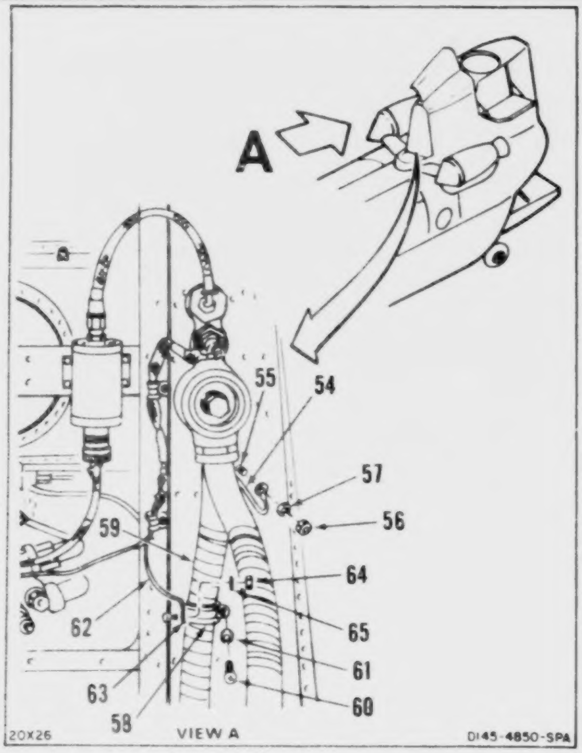
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

CONNECT ELECTRICAL WIRES AND INSTALL CLAMPS FORWARD OF AFT PYLON

37. Remove tag and **position electrical wire (54)** on terminal (55). **Install nut (56)** and washer (57) on terminal.

38. **Position clamp (58)** on engine oil hose (59). **Install screw (60)** and washer (61).

39. Remove tag and **position electrical wire (62)** on terminal (63). **Install nut (64)** and washer (65) on terminal.


A
55
54
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56
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64
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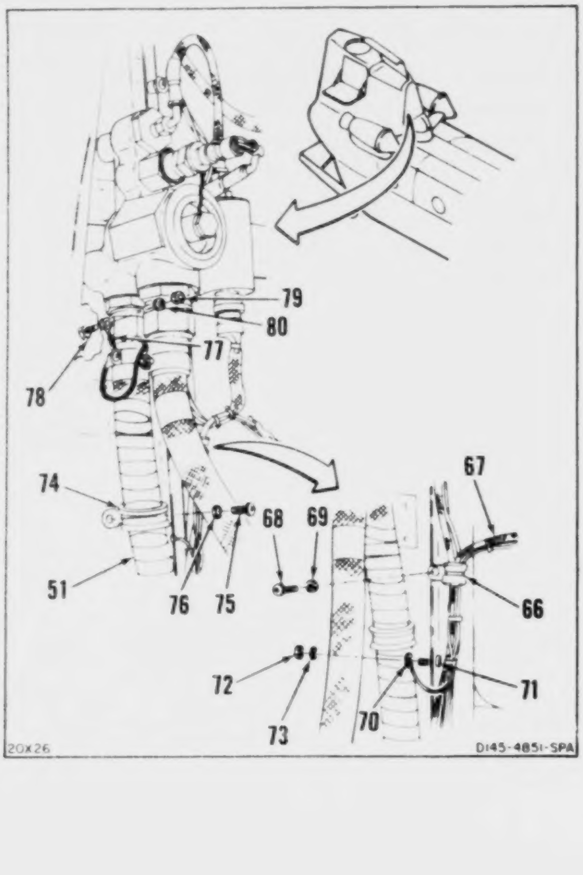
60
58
VIEW A
20X26
D145-4850-SPA

40. **Position six clamps (66)** on wire harness (67). Remove tag and **position wire harness. Install six screws (68)** and washers (69).

41. Remove tag and **position electrical wire (70)** on terminal (71). **Install nut (72)** and washer (73) on terminal.

42. **Position clamp (74)** on engine oil hose (51). **Install screw (75)** and washer (76).

43. Remove tag and **position electrical wire (77)** on terminal (78). **Install nut (79)** and washer (80) on terminal.


79
80
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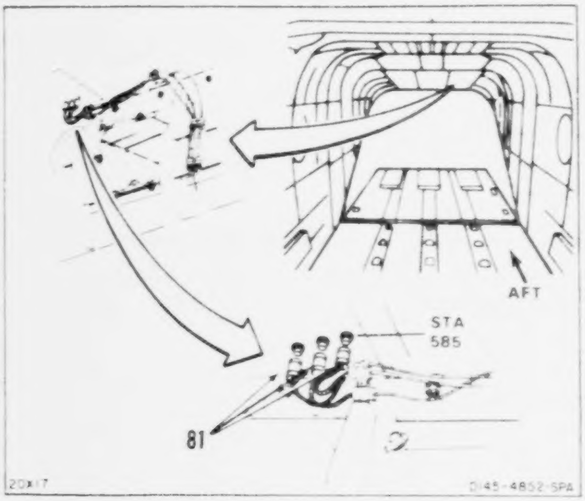
70
20X26
D145-4851-SPA

GO TO NEXT PAGE

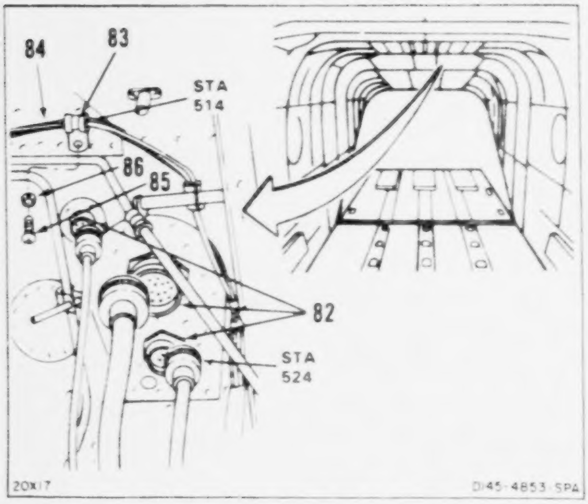
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

CONNECT ELECTRICAL CONNECTORS AND INSTALL CLAMPS INSIDE AFT PYLON

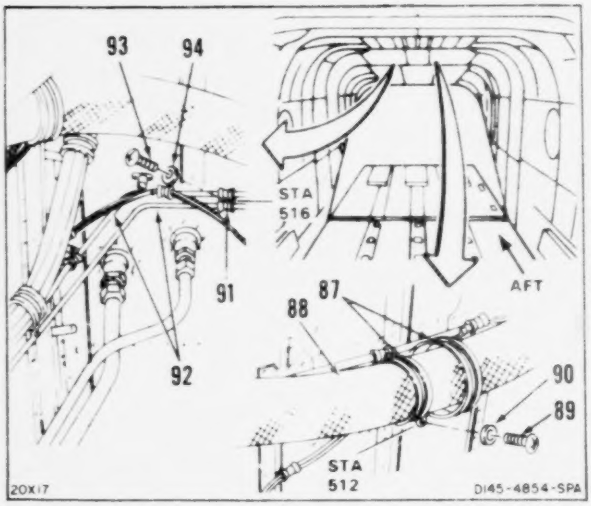
44. Remove tags and **connect three electrical connectors (81)** at station 585, left side.


AFT
STA 585
81
20X17
DI45-4852-SPA

45. Remove tags and **connect three electrical connectors (82)** at station 524, left side.
46. **Position clamp (83)** on wire harness (84) at station 514, left side. **Install screw (85)** and washer (86).


84
83
STA 514
86
85
82
STA 524
20X17
DI45-4853-SPA

47. **Position two clamps (87)** on fuel line (88) at station 512, left side. **Install two screws (89)** and washers (90).
48. **Position four clamps (91)** on two No. 2 boost pressure tubes (92) at station 516, right side. **Install four screws (93)** and washers (94).


93
94
STA 516
91
92
88
87
AFT
90
89
STA 512
20X17
DI45-4854-SPA

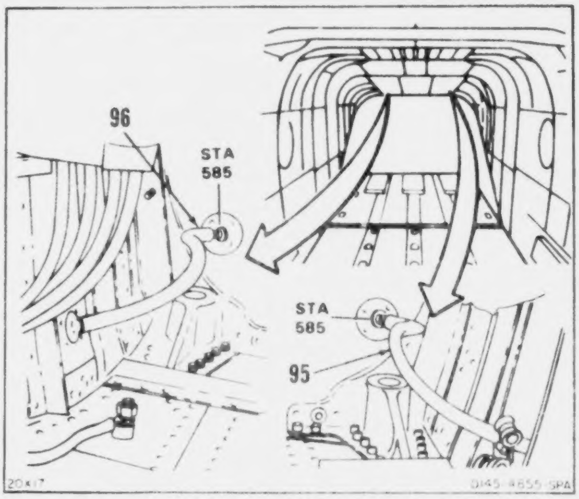
GO TO NEXT PAGE

2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

CONNECT DRAIN HOSES AND HYDRAULIC TUBES INSIDE AFT PYLON

49. Remove tag and **connect drain hose (95)** at station 585, left side. Use cloths (E135) for spilled fluid.

50. Remove tag and **connect drain hose (96)** at station 585, right side. Use cloths (E135) for spilled fluid.



51. Remove tags and **connect two drain hoses (97)** at station 533, left side. Use cloths (E135) for spilled fluid.

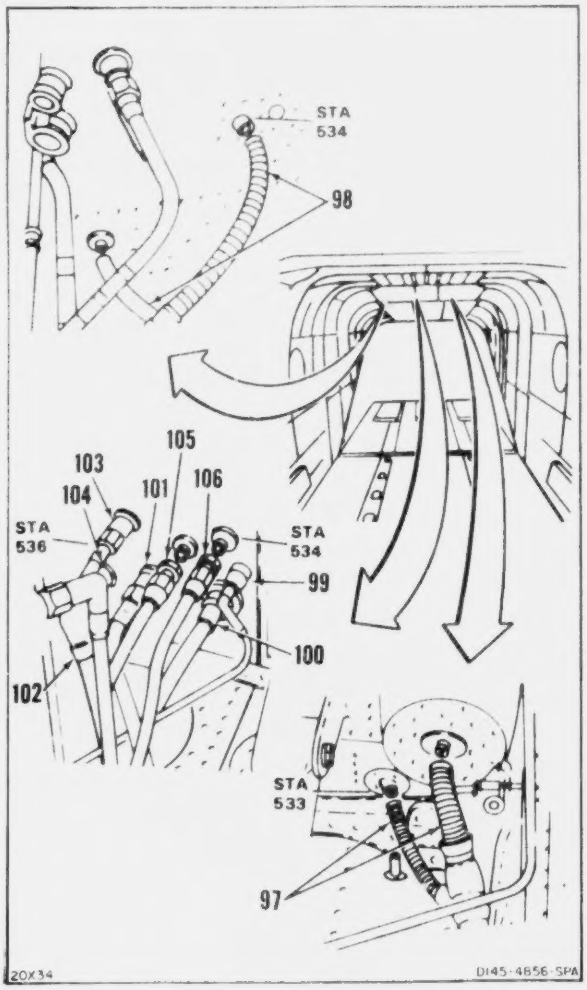
52. Remove tags and **connect two drain hoses (98)** at station 534, right side. Use cloths (E135) for spilled fluid.

53. Remove tags and **connect No. 2 suction tube (99) and utility pressure tube (100)** at station 534. Use cloths (E135) and container for spilled fluid.

54. Remove tags and **connect No. 2 boost pressure tube (101) and utility suction tube (102) at station 536.** Use cloths (E135) and container for spilled fluid.

55. Remove tags and **connect utility return tube (103) and PTU return tube (104)** at station 534. Use cloths (E135) and container for spilled fluid.

56. Remove tags and **connect No. 2 pump case drain (105) and utility pressure tube (106)** at station 534. Use cloths (E135) and container for spilled fluid.



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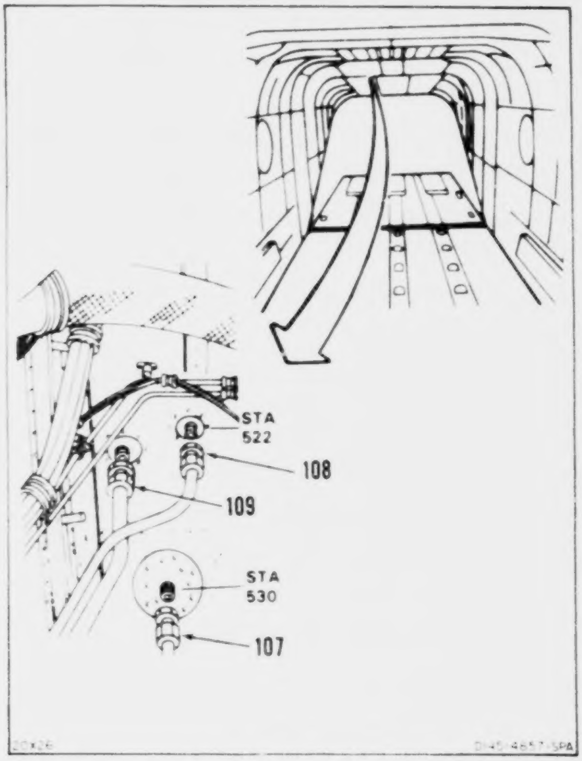
2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

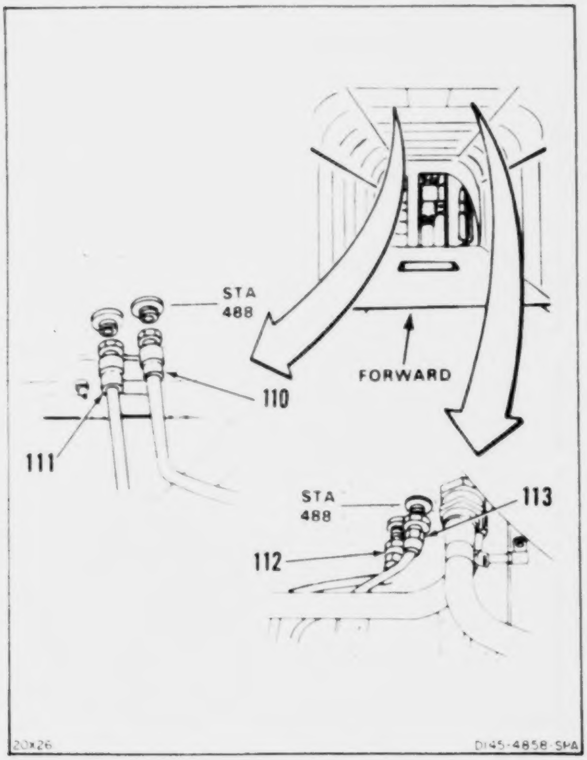
57. Remove tag and **connect No. 2 boost pressure tube (107)** at station 530, right side. Use cloths (E135) and container for spilled fluid.

58. Remove tags and **connect No. 2 boost pressure tube (108) and No. 2 boost return tube (109)** at station 522, right side. Use cloths (E135) and container for spilled fluid.


STA
522
108
109
STA
530
107
20x26
DI45-4857-SPA

59. Remove tags and **connect No. 2 boost pressure tube (110) and No. 2 boost return tube (111)** at station 488, right side. Use cloths (E135) and container for spilled fluid.

60. Remove tags and **connect No. 1 boost pressure tube (112) and No. 1 boost return tube (113)** at station 488, left side. Use cloths (E135) and container for spilled fluid.


STA
488
FORWARD
110
111
STA
488
113
112
20x26
DI45-4858-SPA

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2-309 INSTALL AFT PYLON (AFT SHAFT REMOVED) (Continued) 2-309

FOLLOW-ON MAINTENANCE:

Install fire extinguishers (bottles) (Task 12-32 or 12-33).

Connect pylon, left aft fuselage connecting link (Task 11-253).

Install pylon, left upper connecting link (Task 11-261).

Install pylon, lower right bellcrank (Task 11-259).

Install aft transmission (Task 6-97).

Install aft rotor shaft (Task 6-62).

Install drive collar (Task 5-111).

Install aft swashplate (Task 5-133).

Install aft weather protective cover (Task 5-138).

Install aft rotary head (Task 5-9).

Install rotary wing blades (Task 5-84).

Remove servocylinder safety blocks (Task 11-29).

Service utility hydraulic system (Task 1-62).

Service No. 1 and No. 2 flight control hydraulic system (Tasks 1-61 and 1-62).

Perform rotary-wing system phasing (Task 6-28).

Install No. 9 drive shaft (Task 6-29).

Perform functional test of flight controls (TM 55-1520-240-T).

Close left and right side work platforms (Task 2-2).

Close left and right side hydraulic module inspection access covers (Task 2-2).

Install left and right side access covers (Task 2-2).

Install left and right side aft transmission access covers (Task 2-2).

Install left and right side pylon removal access panels (Task 2-2).

Close right forward crown fairing (Task 2-2).

Install leading edge hinged fairing (Task 2-2).

Install engine transmission oil cooler (Task 6-215).

42X26
D145-4859-SPA

END OF TASK

SECTION V
GENERAL REPAIR INFORMATION USING ADHESIVES

2-310 ADHESIVE BONDING — GENERAL INFORMATION 2-310

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1520-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. This task contains repair procedures and general information on adhesive bonding, filler application, cleaning and removal of finishes, treatment and prevention of corrosion, plating and finish coatings, repair of fiberglass parts, extrusions, plastic parts, fuselage sealing, hardware, sandwich honeycomb repairs, and typical repairs.

2. Reference is made throughout manual to paragraphs or tables in this task, when required.

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2-310 ADHESIVE BONDING — GENERAL INFORMATION (Continued) 2-310

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Adhesive system No. 2, application of	2-315
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Adhesive system No. 6, application of	2-318
Adhesive system No. 7, application of	Deleted. Use system No. 6
Adhesive system No. 8, application of	Deleted. Use system No. 6
Adhesive system No. 9, application of (option 1)	Deleted. Use system No. 5
Adhesive system No. 9, application of (option 2)	Deleted. Use system No. 5
Adhesive system No. 10, application of	2-319
Adhesive system No. 11, application of	2-320
Adhesive system No. 12, application of	2-321
Adhesive system No. 13, application of	2-322
Adhesive system No. 14, application of	2-323
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Bolts, AN, substitution for screws	2-332
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Bolts, NAS, substitution for	2-332
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Repair Procedures and General Information Reference — (Continued)

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Markings, internal, sta 575, looking fwd	2-352
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Repair Procedures and General Information Reference — (Continued)

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Web damage, repair	2-361

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-311 ADHESIVE BONDING

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. This task contains procedures for mixing and application of bonding agents. Use procedures for critical applications only when referenced in manual. For non-critical applications, procedures may be used without specific reference.

2. Select adhesive for greatest benefit from information and tables as follows:

   a. Find type of material to be bonded. Refer to Trade Name Reference table.

   b. Find adhesive systems. Match materials. Refer to Adhesive System Selection table.

   c. Find most suitable system. Refer to Adhesive System Criteria table.

   d. Select adhesive and bonding method. Refer to Acceptable Adhesives table.

Trade Name Reference

TRADE NAME	TYPE OF MATERIAL
Cellophane	Cellulose Film
Conolite	Polyester Resins and Laminates
Cymel	Melamine Molding
Dacron	Polyester Fiber
Dylene	Polystyrene
Estane	Urethane Elastomer
Kralastic	Acrylonitrile-Butadiene Styrene (ABS)
Kydex	Acrylic-Polyvinyl Chloride Alloy
Lexan	Polycarbonate
Lucite	Acrylic Sheet
Lusterlite	Pearlescent Acrylic Sheet
Marbond	Styrene
Mylar	Polyester Film
Nylasint	Sintered Nylon
Orlon	Acrylic Fiber
Plexiglas	Acrylic Sheet
Seilon S-3	A-B-S Polymer Blend
Silastic	Silicone Rubber
Teflon	Fluorocarbon
Videne	Polyester Film
Zytel	Nylon Resin

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2-311 ADHESIVE BONDING (Continued)

NOTE To select the adhesive when binding two materials together, read the number or numbers in the block at which their bars intersect. For example, when binding felt to fabrics, read the numbers 1 and 5. These numbers represent the adhesive system numbers, given in detail in this section.

	Acrylics	Cellulosic	Cork	Fabrics	Felt	Glass Ceramics	Leather	Melamine	Metals Aluminum and Steel	Metals Brass and Copper	Nylon	Paper Cardboard	Phenolics	Polycarbonate	Polyesters and Epoxy Laminates	Polystyrene A B S	Polyurethane Foam	Polyvinylchloride Flexible	Polyvinylchloride Rigid	Rubber Buna N	Rubber Butyl	Rubber Fluorosilicone	Rubber Neoprene	Rubber Polyurethane	Rubber Silicone	Rubber Viton	Teflon	Wood
Acrylics	13																											
Cellulosic	2	1																										
Cork	2	1	1 2 5																									
Fabrics	2	1	1 2 5	1 2 5																								
Felt	2	1	1 5	1 5	1																							
Glass Ceramics	2	1	1 2 5	1 2 5	1 5	1 5																						
Leather	2	1	1 2 5	1 2 5	1 5	1 2 5	1 2																					
Melamine	2	1	1 5	1 5	1 5	5	1 5	5																				
Metals Aluminum and Steel	2 5	1	1 5	1 5	1 5	1 5	1 2 5	1 5	1 5																			
Metals Brass and Copper	2 3	1	1	1 2	1	1 2	1 2	1 2	1 2	1																		
Nylon	2	1 2	1	1 2 5	1 5	1 5	1 2 5	1 5	1 5	1	5																	
Paper Cardboard	2	1 2	1 2	1 2	1	1 2	1 2	1 2	1 2	1 2	1 2	1 2																
Phenolics	2	1	1 2 5	1 5	1 5	1 5	1 5	1 5	1 5	1 2	1 5	1 2	1 5															
Polycarbonate	2							14	14	14			3	14														
Polyesters and Epoxy Laminates	2	1	1 5	1 5	1 5	1 5	1 5	5 10	1 5	1	1 5	1 2 5	5	14	5 12													
Polystyrene A B S	2	1	1 5	1 5	1 5	1 2 5	1 2 5	1 2 5	1 2 5	1 2	1 2 5	2	1 2 5		1 2 5	1 5												
Polyurethane Foam	2	1 2	1 2	1 2	1	1 2	1 2	1 2	1 2	1 2	1 2	1 2	1 2		1 2	1 2	1 2											
Polyvinylchloride Flexible	2	1	1	1	1	1	1	1	1	1	1	1	1	14	1	1	1	1										
Polyvinylchloride Rigid		1	1	1	1	1	1	1	1	1	1	1	1	14	1	1	1	1	1									
Rubber Buna N	2	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1			1								
Rubber Butyl	11	1	1	1	1	1	1	1	1	1	1	1	1		1	1					1							
Rubber Fluorosilicone								6	6	6			6		6							6						
Rubber Neoprene	11	1	1	1	1	1	1	1	1	1	1	1	1	14	1	1	1				1		1					
Rubber Polyurethane								14	14	14			14	14	14			14	14				14	14				
Rubber Silicone	6	6	6	6	6	6	6	6	6	6	6	6	6		6	6	6								6			
Rubber Viton								4	4	4			4		4											4		
Teflon	2	1	1 5	1 2 5	1	1 5	1 2	5	1 5	1	5		1 5		5	1 5	1 2	1	1	1	1		1		6		1 5	
Wood	2	1	1 2 5	1 2 5	1 5	1 5	1 2 5	1 2 5	1 5	1 2	1 5	2	5		5	1 5	1 2	1 5	1 5	1	1		1		6		5	5

Adhesive System Selection

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2-311 ADHESIVE BONDING (Continued) 2-311

Adhesive System Criteria

ADHESIVE SYSTEM NO.	NO. OF COMPONENTS	PHYSICAL PROPERTIES	POT LIFE AT 70°F (21.1°C)	FLASH POINT	SHELF LIFE	STORAGE TEMPERATURE
1	1	A tough, flexible contact adhesive with good peel strength. Good resistance to fuel, oil, and water	N/A	30°F (-1°C)	9 months	Below 80°F (27°C)
2	1	A flexible water resistant contact cement. Poor resistance to fuel and oil	N/A	54°F (12°C)	9 months	40° to 80°F 4° to 27°C)
3		Deleted — Use System 14				
4	2	Cures to a tough flexible rubber, resistant to fuel and oil	24 hours	50°F (10°C) for primer 90 days for primer	12 months for adhesive	Below 80°F (27°C)
5	4	A rigid epoxy adhesive, high in tensile and shear strength. Resistant to fuel and oil; fair resistance to water	2 hours	Part AB 395°F (202°C) Part CD 468°F (242°C)	2 years	Below 80°F (27°C)
6	1	Cures to a flexible rubber; resistant to fuel and oil	30 minutes	50°F (10°C) for primer	8 months for adhesive 12 months for primer	Below 70°F (21°C)
7		Deleted — Use System 6				
8		Deleted — Use System 6				

GO TO NEXT PAGE

2-311 ADHESIVE BONDING (Continued)

Adhesive System Criteria

ADHESIVE SYSTEM NO.	NO. OF COMPONENTS	PHYSICAL PROPERTIES	POT LIFE AT 70°F (21.1°C)	FLASH POINT	SHELF LIFE	STORAGE TEMPERATURE
9		Deleted — Use System 5				
10	2	A tough flexible adhesive, resistant to water, fuel and oil. Poor resistance to salt spray	30 minutes	150°F (66°C)	6 months	Below 80°F (27°C)
11 SEE NOTE	2	Cures to a tough, flexible rubber with good peel strength. Resistant to fuel, water, and salt spray	½ hr for B-½, 1 hr for B-1 2 hr for B-2 4 hr for B-4 8 hr for B-8	80°F (27°C)	6 months	40° to 80°F (4° to 27°C)
12	2	A rigid adhesive high in shear and tensile strength	20 to 30 minutes	395°F (202°C)	2 years	Below 80°F (27°C)
13	3	A rigid adhesive which will not craze acrylics	10 minutes	—	1 year	Below 75°F (24°C)
14	2	A two component room temperature curing urethane adhesive	30 to 70 minutes	—	6 months	Below 100°F (37.8°C) (unopened containers only)

NOTE

The acceptable adhesives under this system are available in a choice of pot lives. For example, B-½ indicates a pot life of 30 minutes, B-1 a pot life of 1 hour, etc. The letters and numbers B-½, B-1, etc. will be found as part of the manufacturer's designation for these adhesives in table 1-5.

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2-311 ADHESIVE BONDING (Continued) 2-311

Acceptable Adhesives

ADHESIVE SYSTEM NO.	ITEM NO.	MANUFACTURER'S DESIGNATION	APPLICATION AND CURE TASK NO.
1	E103 E101	Pro-Seal 590M M6249	2-314
2	E99 E59	EC1870 Tereco No. 68	2-315
3	Deleted. Use system 14		
4	E53 E264	PR1710 PR1711 Primer	2-316
5	E43	Component A: EC-2216 Part A Component B: EC-2216 Part B	2-317
6	E58 E300	RTV 102 SS4004 Primer	2-318
7	Deleted. Use system 6		
8	Deleted. Use system 6		
9	Deleted. Use system 5		
10	E52	Pro-Seal 501	2-319
11	E51 E54	Pro-Seal 719 PR9021	2-320
12	E47 E192	Epocast 50-A Hardener, Epocast 9816	2-321
13	E104 E97	Component A: PS30 Part A Component B: PS30 Part B	2-322
14	E30	EC-3549 B/A	2-323

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-312 ADHESIVE APPLICATION CRITERIA 2-312

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance, NSN 6670-00-401-7195

Materials:
None

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Follow this information completely when applying adhesive systems.

   a. If adhesive, or components, have been refrigerated they must warm to 70°F (21°C) before blending or use.

   NOTE

   - High temperatures and humidity shorten adhesive pot life. Low temperatures lengthen adhesive pot life.
   - Urethanes crystallize below 40°F (4°C). Crystals must be warmed to 150°F (66°C) before mixing with other components.

   b. Do not omit or add ingredients. Do not vary mixing or blending procedures.

   c. Do not thin adhesives unless allowed by procedures.

   d. When working with 2-part adhesives, blend adhesives by weight within 2.5 percent. Use trip balance.

   e. Blend adhesives only in clean metal, glass, polyethylene, or Teflon containers.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-313 PREPARATION OF BONDING SURFACES 2-313

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
Abrasive Paper (E4 thru E15)
Cloths (E120)
Emery Cloths (E123 thru E127)
Methyl-Ethyl-Ketone (E244)
Aliphatic Naphtha (E245)
Gloves (E186)

Personnel Required:
67U10 Medium Helicopter Repairer

Equipment Condition:
As Required

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. **Clean all bonding surfaces** except thermoplastic, phenolic, and melamine. Use cloths (E120) damp with methyl-ethyl-ketone (E244). Use gloves (E186).

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. **Sand thermoplastic, phenolic, and melamine surfaces** as required to remove gloss. **Clean surfaces** with aliphatic naphtha (E245).

FOLLOW ON MAINTENANCE:

As required.

END OF TASK

2-314 APPLICATION OF ADHESIVE — SYSTEM NO. 1 2-314

INITIAL SETUP

Applicable Configurations:

All

Tools:

Heat Lamp

Materials:

Tongue Depresser (E424)

Methyl-Ethyl-Ketone (E244)

Gloves (E186)

Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer

Inspector

References:

Task 2-313

Task 2-311

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

NOTE

Acceptable adhesives under System No. 1 replace cements EC-711, EC-847, and EC-826. Use existing stocks of these cements until depleted. For acceptable adhesives, refer to Adhesive System Criteria table.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesive table (Task 2-311). Wear gloves (E186).
2. Stir adhesive thoroughly in its container. Use tonque depressor (E424).
3. If adhesive is to be sprayed, thin with methyl-ethyl-ketone (E244). Use only enough thinner to permit spraying.
4. Brush or spray one coat of adhesive on each mating surface.
5. Apply two coats of adhesive to porous surfaces such as cloth or wood. Allow first coat to dry completely before applying second coat.
6. Allow adhesive to dry completely. Join surfaces. Apply pressure to assure contact.

NOTE

Assembled parts may be handled immediately. Adhesive must cure 7 days at 70°F (21°C) or 6 hours at 200°F (93°C) to reach maximum strength.

INSPECT

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-315 APPLICATION OF ADHESIVE — SYSTEM NO. 2 2-315

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

Tongue Depressor (E424)
Cheesecloth (E112)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-313
Task 2-311

Equipment Condition:

As Required

General Safety Instructions:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

1. Clean mating surfaces. Use naphtha (E245) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Stir adhesive thoroughly in its container. Use tongue depressor (E424).

NOTE

Adhesive settles during use.

3. Stir adhesive several times during use.
4. (Step deleted.)
5. Apply uniform coat of adhesive to mating surfaces.
6. Allow adhesive to dry until tacky. Touch lightly with knuckle. If adhesive does not stick to skin, parts may be joined.
7. When bonding large area, let adhesive dry until no longer tacky. Activate adhesive. Wipe one surface. Use cheesecloth (E112) damp with naphtha (E245). Wear gloves (E186).
8. Press parts together. Apply enough pressure to assure complete contact without trapped air.

NOTE

Assembled parts may be handled immediately.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-316 APPLICATION OF ADHESIVES — SYSTEM NO. 4 2-316

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance, NSN 6670-00-401-7195
Heat Lamp

Materials:
Methyl-Ethyl-Ketone (E244)
Primer (E298)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-313
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Brush uniform coat of primer (E298) on all mating surfaces except rubber. Allow 60 minutes for primer to dry.
3. Weigh 20 parts of adhesive and 1 part of accelerator. Use trip balance. Blend in polyethylene cup (E157). Use tongue depressor (E424).

NOTE

Pot life of blended adhesive is 24 hours.

4. Bond rubber to surfaces other than rubber as follows:
   a. Brush uniform coat of blended adhesive on rubber. Allow to dry 60 minutes.

NOTE

Best results are obtained when coat is 0.002 to 0.003 inches thick.

   b. Brush coat of adhesive on primed surface other than rubber. Allow to dry until tacky.
   c. Join coated surfaces. Apply enough pressure to assure complete contact.
   d. Cure adhesive under pressure 16 hours at 70°F (21°C) before handling.

NOTE

Complete cure is achieved aft 7 days at 70°F (21°C), or in 16 hours at 200°F (93°C).

5. Bond rubber to rubber as follows:
   a. Brush uniform coat of blended adhesive on both mating surfaces. Allow 60 minutes to dry.
   b. Brush second coat on one surface. Allow to dry until tacky.

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2-316 APPLICATION OF ADHESIVES — SYSTEM NO. 4 (Continued) 2-316

c. Join coated surfaces. Use sufficient pressure to assure complete contact.

d. Cure adhesive under pressure 16 hours at 70°F (21°C) before handling.

NOTE

Complete cure is achieved in 7 days at 70°F (21°C), or 16 hours at 70°F (21°C) followed by 1 hour at 200°F (93°C).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-317 APPLICATION OF ADHESIVE — SYSTEM NO. 5 2-317

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance
Heat Lamp

Materials:
Methyl-Ethyl-Ketone (E244)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-313
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Blend adhesive as follows:
   a. Mix, by weight, 100 parts of part B with 140 parts of part A. Use trip balance.
   b. Stir mixture in polyethylene cup (E157). Use tongue depressor (E424).
3. Apply thin, uniform coat of blended adhesive to mating surfaces.
4. Join parts. Apply enough pressure to assure complete contact.
5. Remove excess adhesive. Use methyl-ethyl-ketone (E244).

NOTE

Heat lamp and temperature indicating strips (E413) are required for steps a thru d.

6. Cure adhesive. Use one of these cycles:
   a. 60 minutes at 200°F (93°C).
   b. 2 hours at 170°F (77°C).
   c. 8 hours at 120°F (49°C).
   d. 11 hours at 104°F (40°C).
   e. 24 hours at 70°F (21°C).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-318 APPLICATION OF ADHESIVE — SYSTEM NO. 6 2-318

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
Methyl-Ethyl-Ketone (E244)
Primer (E300)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-313
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).

WARNING

Primer (E300) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. Brush two coats of primer (E300) on all surfaces except rubber. Allow 45 minutes for drying after each coat.

CAUTION

Do not expose adhesive to air more than a few minutes. Poor bond will result.

3. Brush uniform coat of adhesive on both mating surfaces. Join coated surfaces immediately.
4. Apply enough pressure to assure complete contact. Do not cause excessive squeezeout.

NOTE

A bond line 0.015-inch thick will give best results.

5. Cure adhesive 24 hours at 75°F (24°C).

NOTE

Complete bond strength is achieved in 3 days.

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-319 APPLICATION OF ADHESIVE — SYSTEM NO. 10 2-319

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance

Materials:
Methyl-Ethyl-Ketone (E244)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-313
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesives under this system are toxic. They can cause injury to personnel. Work only in well-ventilated areas.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Mix each component thoroughly in its own container.
3. Weigh 30 parts of accelerator and 100 parts of base. Use trip balance. Blend in polyethylene cup (E157). Use tongue depressor (E424).
4. Apply uniform coat of blended adhesive to both surfaces.
5. Join parts. Apply enough pressure to assure complete contact.
6. Remove squeeze out. Use methyl-ethyl-ketone (E244).
7. Cure adhesive 12 hours at 70°F (21°C).

NOTE

Full cure is attained after 48 hours.

INSPECT

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-320 APPLICATION OF ADHESIVE — SYSTEM NO. 11 2-320

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
Methyl-Ethyl-Ketone (E244)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-313
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Adhesives under this system are toxic and flammable. They can cause injury or equipment damage. Work in well-ventilated areas away from flame.

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean mating surfaces. Use methyl-ethyl-ketone (E244) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Blend base with activator. Follow instructions on container.
3. Apply thin uniform coat of adhesive to both mating surfaces.
4. Assemble parts immediately. Apply enough pressure to assure complete contact.
5. Cure adhesive at 70°F (21°C) as follows:
   a. Class B ½ — 16 hours.
   b. Class B1 — 36 hours.
   c. Class B2 — 48 hours.
   d. Class B4 — 60 hours.

NOTE

Cure times are for handling only. Full cure is achieved in 7 days or more.

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-321 APPLICATION OF ADHESIVE — SYSTEM NO. 12 2-321

INITIAL SETUP

Applicable Configurations:

All

Tools:

Heat Lamps
Wood Blocks
C-Clamps
Trip Balance, NSN 6670-00-401-7195
Roller

Materials:

Naphtha (E245)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Teflon Sheet (E412)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Task 2-313
Task 2-311

Equipment Condition:

As Required

General Safety Instructions:

As Required

WARNING

Adhesives under this system are toxic. They can cause injury to personnel. Work only in well-ventilated areas.

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

1. Clean mating surface. Use naphtha (E245) (Task 2-313). Follow Acceptable Adhesives table (Task 2-311). Wear gloves (E186).
2. Weigh 9 parts of curing agent and 100 parts of adhesive. Use trip balance. Mix well in polyethylene cup (E157). Use tongue depressor (E424). Wear gloves (E186) through step 5.
3. Brush coat of adhesive on each ply of repair part.
4. Assemble plies on Teflon sheet (E412).
5. Brush final coat of adhesive on assembled plies.
6. Position plies on repair area with Teflon sheet (E412) facing outward.
7. Remove air bubbles from repair. Use rollers.
8. Apply slight pressure to repaired areas. Use wooden blocks and C-clamps.

NOTE

Heat lamp and temperature indicating strips (E413) are required for step 9 if the 1 hour at 160°F (71°C) is used.

9. Cure repaired area 4 hours at 70°F (21°C), or 1 hour at 160°F (71°C).
10. Remove blocks, clamps, and Teflon sheet (E412).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-322 APPLICATION OF ADHESIVE — SYSTEM NO. 13 2-322

INITIAL SETUP

Applicable Configurations:
All

Tools:
Earthenware Container
Clamps
Heat Lamps

Materials:
Abrasive Paper (E7)
Naphtha (E245)
Masking Tape (E388)
Tongue Depressor (E424)
Polyethylene Cup (E157)
Isopropyl Alcohol (E64)
Soap (E353)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-311
Task 2-313

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Adhesives under this system are toxic and can irritate skin. Work only in well-ventilated areas. Avoid bodily contact with adhesives.

1. Follow Acceptable Adhesives table (Task 2-311) for adhesive selection.
2. Roughen mating surfaces. Use abrasive paper (E7).

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

3. Clean mating surfaces. Use naphtha (E245) (Task 2-313). Allow to dry completely. Wear gloves (E186).
4. Mask areas around repair area. Use masking tape (E388).
5. Pour 4 ounces of cement resin (E105) in clean earthenware container.
6. Add one 2.4 gram capsule of catalyst (E96) to resin. Stir until capsule is dissolved. Use tongue depressor (E424).

NOTE

Mixture can be kept usable for 24 hours by refrigerating at 40°F (4°C) or lower.

7. Pour 5cc of promoter (E304) to clean polyethylene cup (E157).

WARNING

Mixing promoter directly with catalyst will cause violent reaction. Chemicals in cement can irritate skin. If cement contacts skin, wash immediately. Use isopropyl alcohol (E64). Flush with soap (E353) and water. Vapors are toxic. Work in well-ventilated room.

8. Add promoter to cement resin/catalyst mixture. Stir well.

NOTE

Pot life of adhesive mix with promoter added is 10 minutes.

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2-322 APPLICATION OF ADHESIVE — SYSTEM NO. 13 (Continued) 2-322

9. Brush thin uniform coat of cement on both mating surfaces.
10. Join coated surfaces immediately. Hold together gently 20 seconds before applying pressure.
11. Apply pressure equally. Use clamps.
12. Scrape excess cement onto masked area.
13. After 12 hours, remove clamps.
14. Cure 2 hours at 70°F (21°C).
15. Allow assembly to set 4 hours at 168°F (64°C). Use heat lamp and temperature indicating strips (E413).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-323 APPLICATION OF ADHESIVES — SYSTEM NO. 14 2-323

INITIAL SETUP

Applicable Configurations:

All

Tools:

Trip Balance
NSN 6670-00-401-7195

Materials:

Cloth (E120)
Methyl-Ethyl-Ketone (E244)
Paint Remover (E261)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

References:

Acceptable Adhesive Table

Equipment Condition:

As Required

General Safety Instructions:

WARNING

Methyl-ethyl-ketone (E244) is flammable and toxic. It can irritate skin and cause burns. use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Paint remover (E261) is flammable and toxic. it can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Adhesive (E30) contains isocyanates. Avoid skin contact and inhalation of vapors. Work only in areas having adequate local exhaust ventilation system. Wear rubber gloves and goggles. Launder contaminated clothing before reuse.

1. Clean primed mating surfaces. Use cloth (E120) damp with methyl-ethyl-ketone (E244). Wear gloves (E186).
2. If surface primer is flaking or deteriorated, remove as required. Use paint remover (E261). Remove primer only from bonding area. Wear gloves (E186).
3. Clean surface where primer was removed. Use cloth (E120) damp with methyl-ethyl-ketone (E244). Wear gloves (E186).

NOTE

Fabric from new roll requires no cleaning.

4. Clean soiled fabric. use methyl-ethyl-ketone (E244). Wait until ketone odor is gone before bonding fabric. Wear gloves (E186).

NOTE

Complete mixing is required to obtain maximum adhesive performance:

5. Mix adhesive (E30) as follows. Refer to Acceptable Adhesives table:
   a. Weigh 100 parts of base and 109 parts of accelerator. Use trip balance.
   b. Mix completely in polyethylene cup (E157). Use tongue depressor (E424).

GO TO NEXT PAGE

2-323 APPLICATION OF ADHESIVES — SYSTEM NO. 14 (Continued) 2-323

6. Apply uniform coat of adhesive to both mating surfaces.
7. Join parts. Apply enough pressure to assure complete contact.
8. Remove squeeze out. Use cloth (E120) damp with methyl-ethyl-ketone (E244).
9. Cure adhesive 48 hours at 70°F (21°C).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-324 FUSELAGE SEALING 2-324

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance
NSN 6670-00-401-7195
3M Spray Gun (T170)

Materials:
Cloth (E128)
Cleaner (E118)
Cleaning Compound (E117)
Acetone (E20)
Cloth (E120)
Dry Cleaning Solvent (E162)
Gloves (E186)
Abrasive Paper (E11, or finer)
Alodine (E65)
Naptha, Aliphatic (E245)
Brush (E85)
Sealant (E344.1)
Epoxy Primer (E292)
Epoxy Topcoat (E196)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
Task 2-41

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Seal all fuselage external joints, seams, holes, skin laps, and fasteners. Refer to Fuselage Sealing figure and Acceptable Sealants — Properties and Working Criteria table.
2. Perform all operations, such as fitting, drilling, countersinking, deburring, or other rework before sealing. Mating surfaces are especially important. Cleaned area shall be larger than area to be sealed.

SURFACE PREPARATION

3. Prepare surface as follows:
   a. Clean acrylic plastic surfaces such as windshields and panes. Use flannel cloth (E128) and cleaner (E118) or cleaning compound (E117) (Task 2-41).

WARNING

Acetone (E20) is extremely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   b. Clean plastic-impregnated glass cloth parts. Use cloths (E120) soaked with acetone (E20). Dry parts. Use clean cloth. Wear gloves (E186).

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   c. Clean all metal surfaces to be sealed. Use cloths (E120) soaked with solvent (E162).

NOTE

Do not remove aluminized paint from wheel assemblies.

   d. Dry area before solvent evaporates. Use cloth (E120).
   e. Repeat steps c. and d. until cloths (E120) stay clean.

NOTE

Three solvent applications should be enough.

GO TO NEXT PAGE

WARNING

Aliphatic naphtha is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

f. Clean metal surfaces with aliphatic naphtha when using sealant (E344.1)

g. Scuff-sand zinc chromate primed areas with abrasive paper (E11) or a finer abrasive paper.

WARNING

Alodine (E65) is an oxidizer. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone, mek, or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

h. Apply a coat of alodine (E65) to prepared area. Use brush (E85).

Acceptable Sealants — Properties and Working Criteria

SEALING COMPOUND	WORKING LIFE (HOURS)	CURE TIME (HOURS) (NOTE 1.)	USE AND METHOD OF APPLICATION
PR9021A (E342)	1	36	
PR9021A-2 (E342)	2	44	
PROSEAL 719A-2 (E337)	2	44	NOTE 3.
PR9021A-4 (E342)	4	72	
PROSEAL 890B-1/2 (E336)	0.5	6	
PROSEAL 890B-2 (E336)	2	48	
PROSEAL 890C-24 (E336)	24	168	NOTE 4.
PROSEAL 890C (E336)	48	336	
PROSEAL 890C-80 (E336)	80	504 at 100°F (38°C)	
PROSEAL 896 (E338)	2	48	NOTE 5.
PROSEAL 700 (E339)	24	168	NOTE 6.
SEALANT (E344.1)	0	1 for Spray	NOTE 7.
SEALANT (E344.1)	0	2 for Brush	NOTE 7.
EPOXY PRIMER (E292)	0	1 to 2	NOTE 7.
EPOXY TOPCOAT (E196)	0	1	NOTE 7.

NOTE

1. Cure temperature is 77°F (25°C)unless otherwise noted.
2. Mix sealing compound in accordance with structions on container.
3. Brush applied for fastener sealing.
4. Pressure gun or tongue depressor applied for fillets and mating surfaces.
5. Pressure gun or tongue depressor applied for hole filling.
6. Pressure gun or tongue depressor applied for firewall sealing only.
7. Pressure gun or brush applied for coating/sealing.

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2-324 FUSELAGE SEALING (Continued) 2-324

TWO-PART SEALANT PREPARATION

4. Prepare two-part sealant as follows:

   a. Weigh components of sealants listed in Acceptable Sealants — Properties and Working Criteria table.

   b. Mix components completely until color is uniform and free of streaks.

NOTE

Avoid whipping which entraps air. Avoid overheating when using mixing machine. Overheating shortens storage and working life.

PREPARED SEALANT STORAGE

5. Refrigerate mixed sealing compounds which cannot be used within working life. Refer to Acceptable Sealants — Properties and Working Criteria table. Refrigerate for 2 weeks maximum at −40°F (−40°C).

6. Allow sealants to warm to minimum of 60°F (16°C) before using. Working life of thawed sealants is same as freshly-mixed sealants.

NOTE

Thawing usuallly requires 20 to 30 minutes. For quicker thawing place sealant in water at 120°F (49°C) for 10 minutes.

WARNING

Epoxy primer (E292) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Sealant (E334.1) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

7. **Apply epoxy primer (E292) and sealant (E334.1)** as follows:

   a. Apply coat of epoxy primer (E292) and allow to dry.

   b. Stir sealant (E344.1).

NOTE

Do not use sealant (E344.1) if lumps, gel, grit, or foreign materials are present, or if shrinking occurs.

   c. Apply at least 3 coats of sealant (E344.1). Allow to dry (six minutes when sprayed; 12 minutes when brushed).

   d. Apply a light coat of epoxy primer (E292). Allow epoxy to dry.

   e. Apply two coats of epoxy topcoat (E136). Allow epoxy topcoat to dry between coats.

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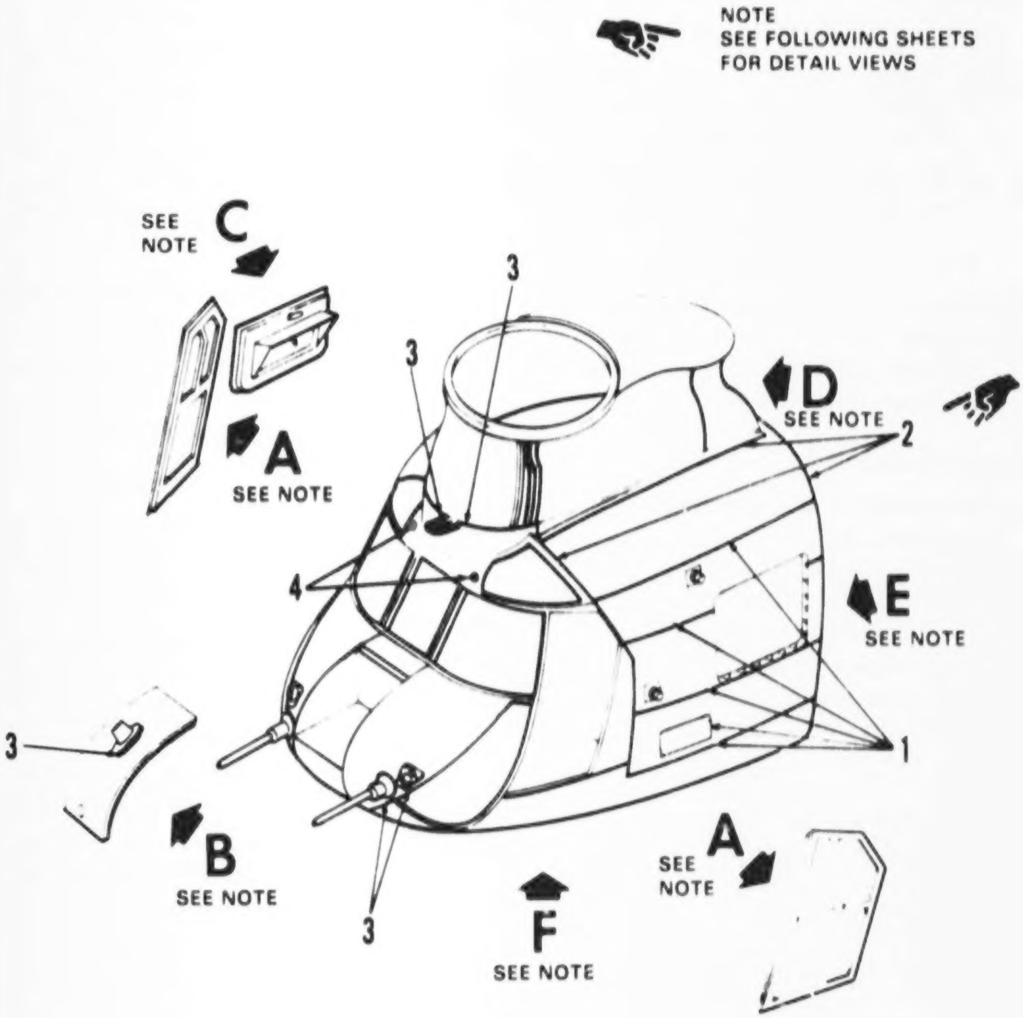
2-324 FUSELAGE SEALING (Continued) 2-324


NOTE
SEE FOLLOWING SHEETS
FOR DETAIL VIEWS
SEE NOTE C
3
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D SEE NOTE
2
A SEE NOTE
4
E SEE NOTE
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B SEE NOTE
3
F SEE NOTE
SEE NOTE A

1 MATING SURFACE SEALANT BETWEEN SKIN LAP
2 MATING SURFACE SEALANT BETWEEN SKIN AND PART
3 FILLET SEAL ALONG EDGE
4 FILLET SEAL AROUND WINDSHIELD WIPER POST

2527

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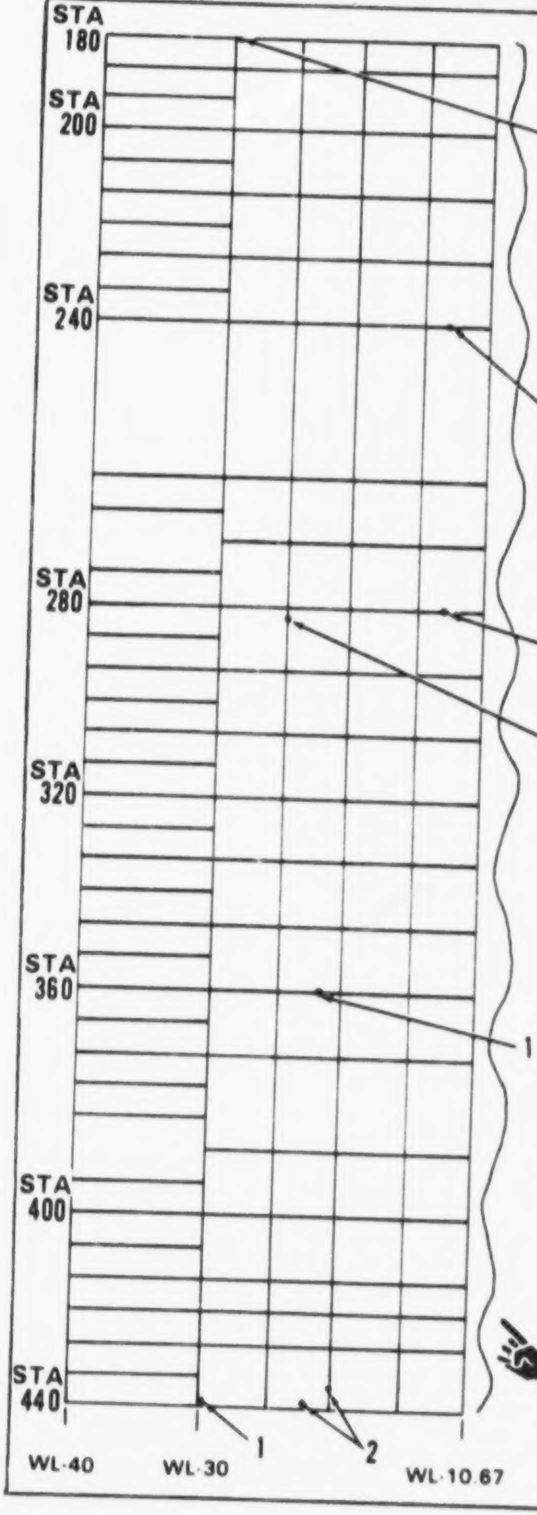
2-324 FUSELAGE SEALING (Continued)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STA 360
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STA 440
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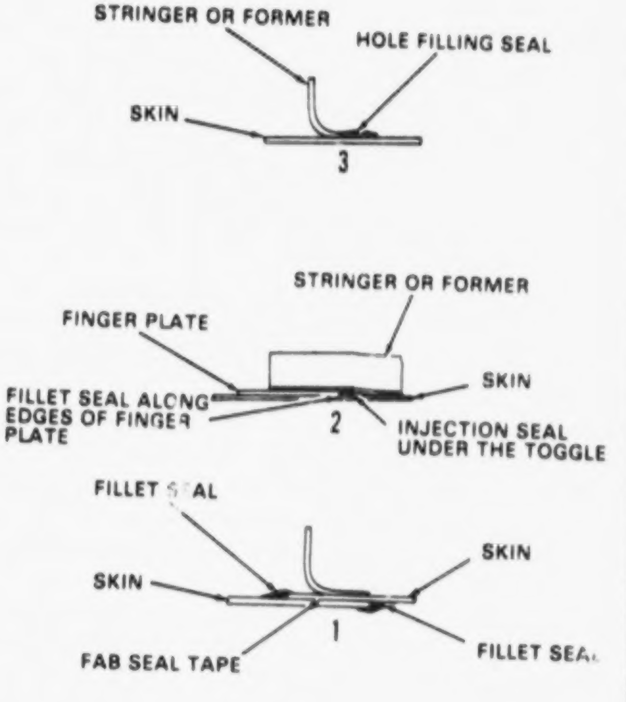
WL-40
WL-30
WL-10.67

1. APPLY FILLET SEAL ALONG INSIDE AND OUTSIDE EDGES OF SKINS, IF ORIGINAL SKIN JOINT SEALANT IS FABSEAL TAPE.
   NOTE 1
   NOTE 2
2. SEAL ALL EDGES OF FINGERPLATES WITH FILLET SEAL AND FILL SPACE UNDER STRINGER OR FORMER JOGGLES WITH INJECTION SEAL.
   NOTE 2
3. INSPECT ALL STRUCTURAL MEMBERS FOR OPEN HOLES. FILL EACH HOLE WITH HOLE FILLING SEAL.
   NOTE 2

NOTES: 1. SKINS SEALED WITH FAYING SURFACE SEALANT REQUIRE NO ADDITIONAL SEALING.

2. FILLET SEALING NOT REQUIRED INSIDE FUSELAGE IF SEALANT (334.1) IS USED.


STRINGER OR FORMER
HOLE FILLING SEAL
SKIN
3
STRINGER OR FORMER
FINGER PLATE
SKIN
FILLET SEAL ALONG EDGES OF FINGER PLATE
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INJECTION SEAL UNDER THE TOGGLE
FILLET SEAL
SKIN
SKIN
1
FAB SEAL TAPE
FILLET SEAL

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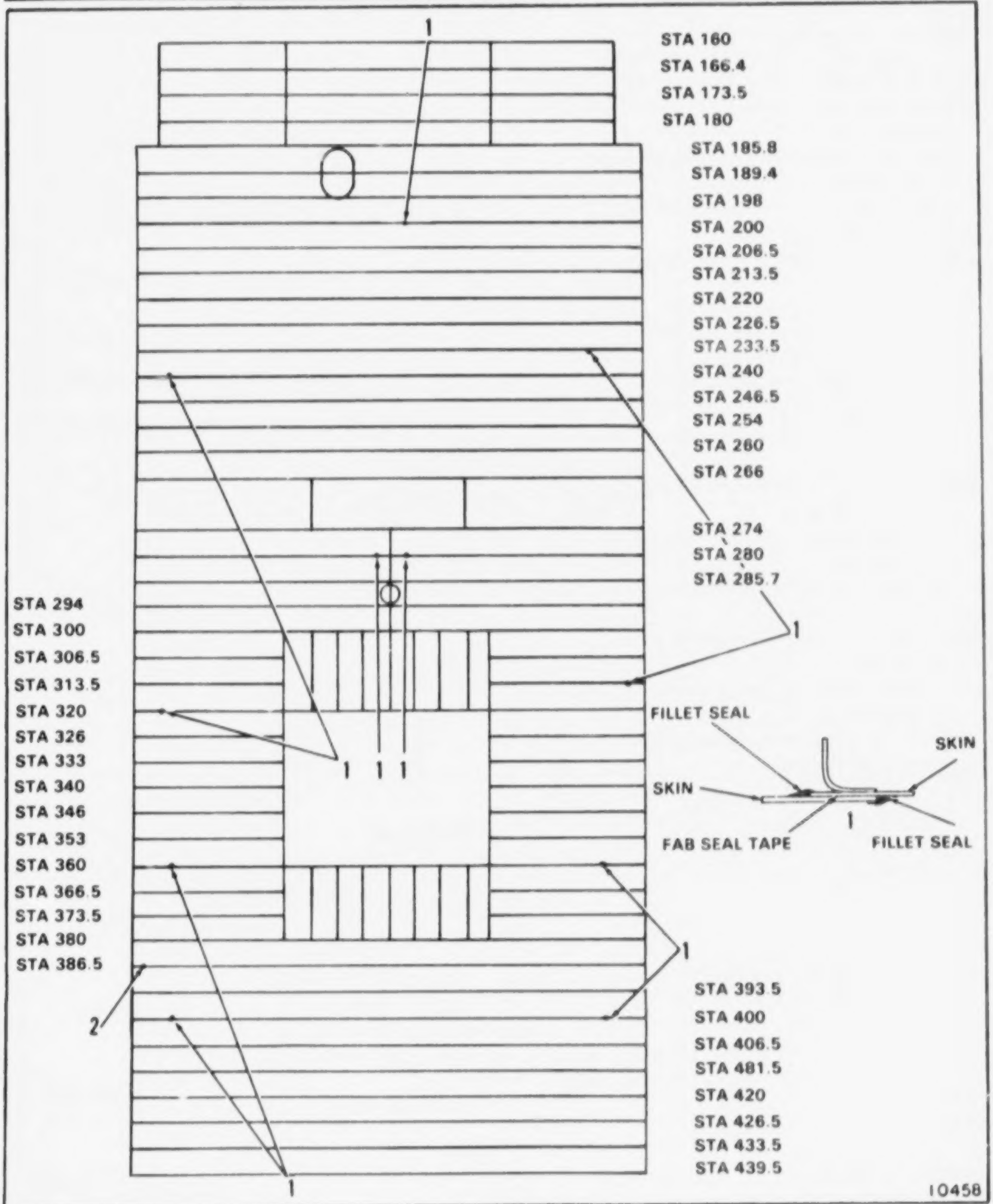
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STA 173.5
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STA 185.8
STA 189.4
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STA 213.5
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STA 233.5
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STA 366.5
STA 373.5
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STA 400
STA 406.5
STA 481.5
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STA 433.5
STA 439.5
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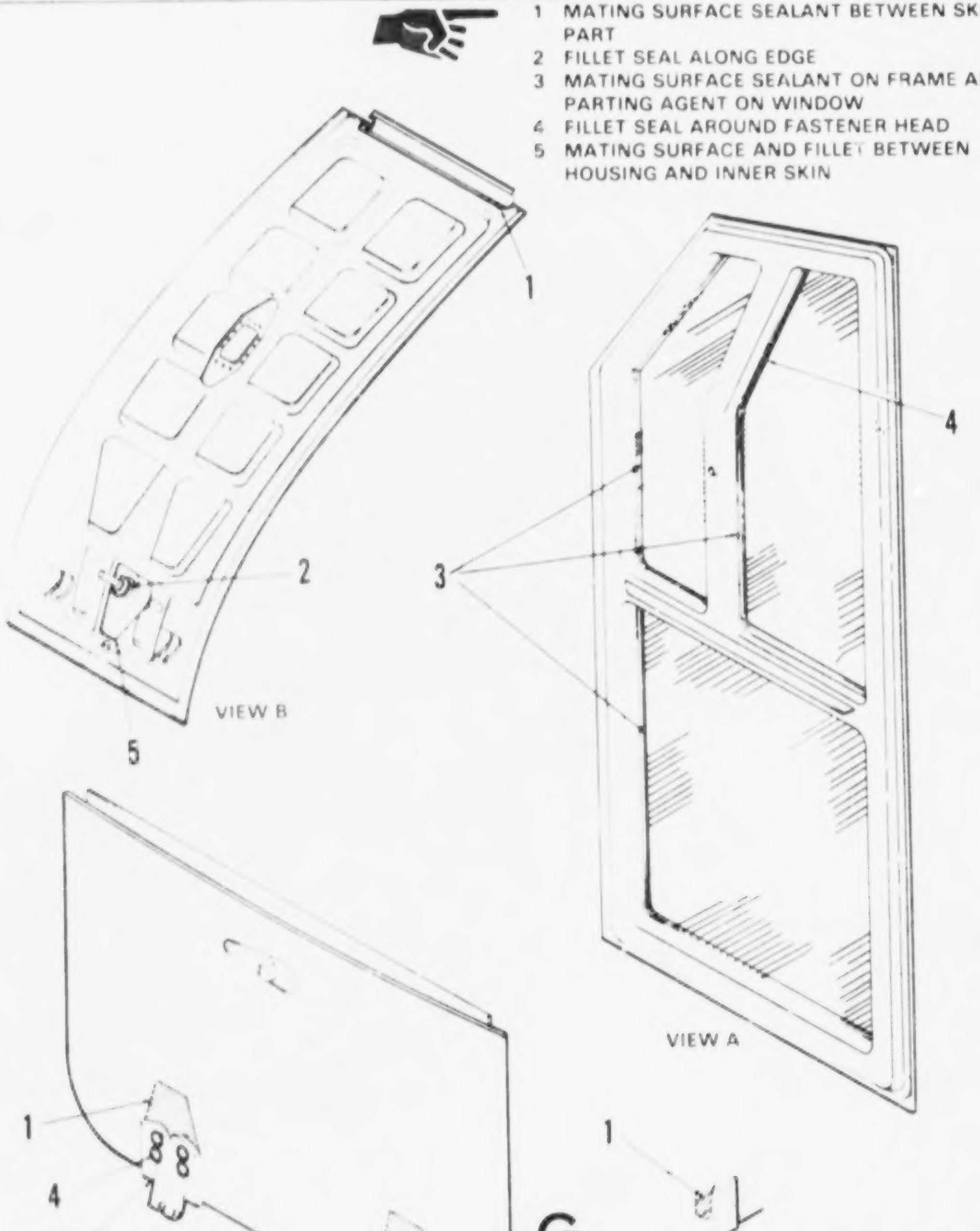
2-324 FUSELAGE SEALING (Continued) 2-324



1 MATING SURFACE SEALANT BETWEEN SKIN AND PART
2 FILLET SEAL ALONG EDGE
3 MATING SURFACE SEALANT ON FRAME AND PARTING AGENT ON WINDOW
4 FILLET SEAL AROUND FASTENER HEAD
5 MATING SURFACE AND FILLET BETWEEN HOUSING AND INNER SKIN

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VIEW B
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VIEW A
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VIEW G
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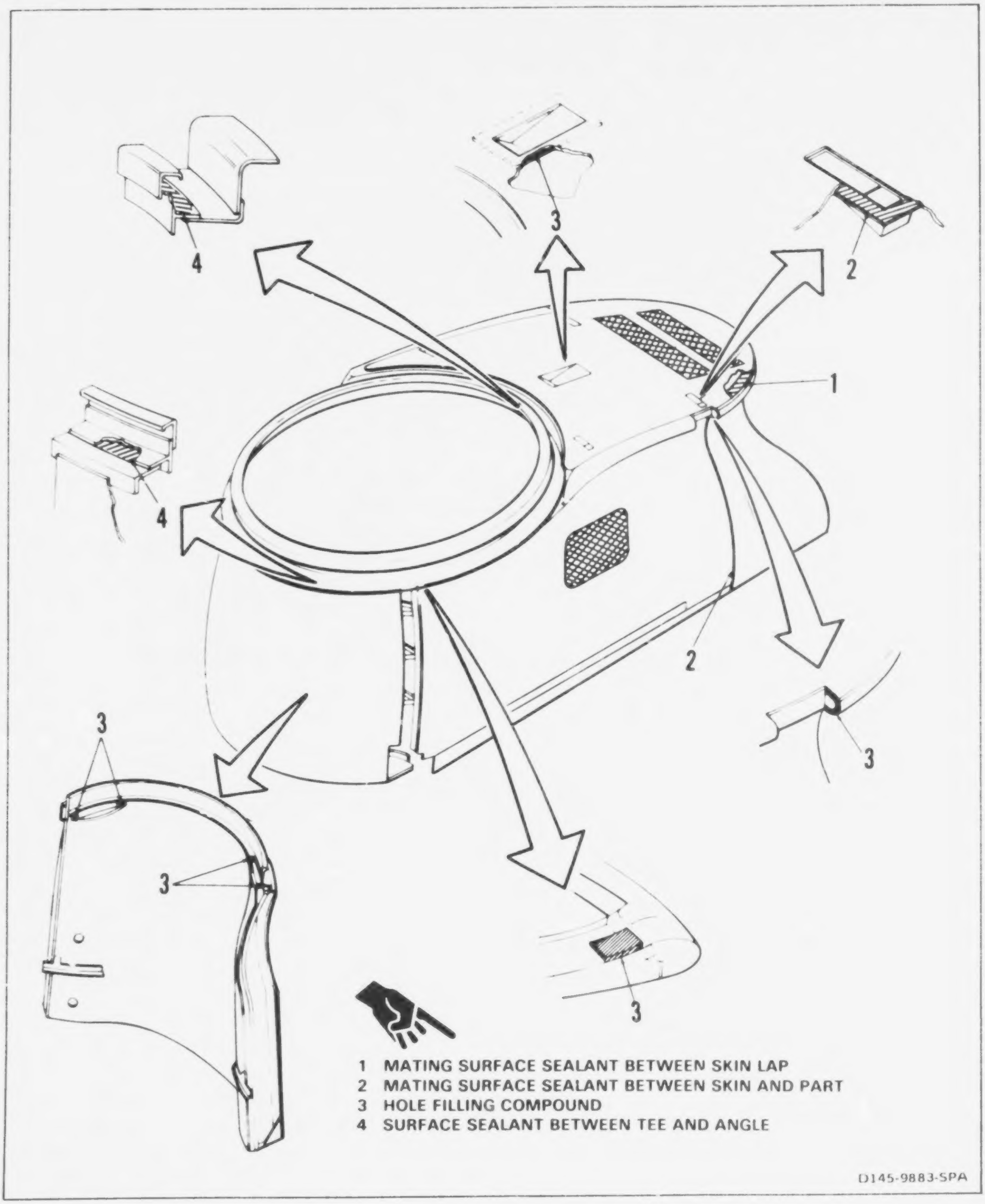
2-324 FUSELAGE SEALING (Continued) 2-324



1 MATING SURFACE SEALANT BETWEEN SKIN LAP
2 MATING SURFACE SEALANT BETWEEN SKIN AND PART
3 HOLE FILLING COMPOUND
4 SURFACE SEALANT BETWEEN TEE AND ANGLE

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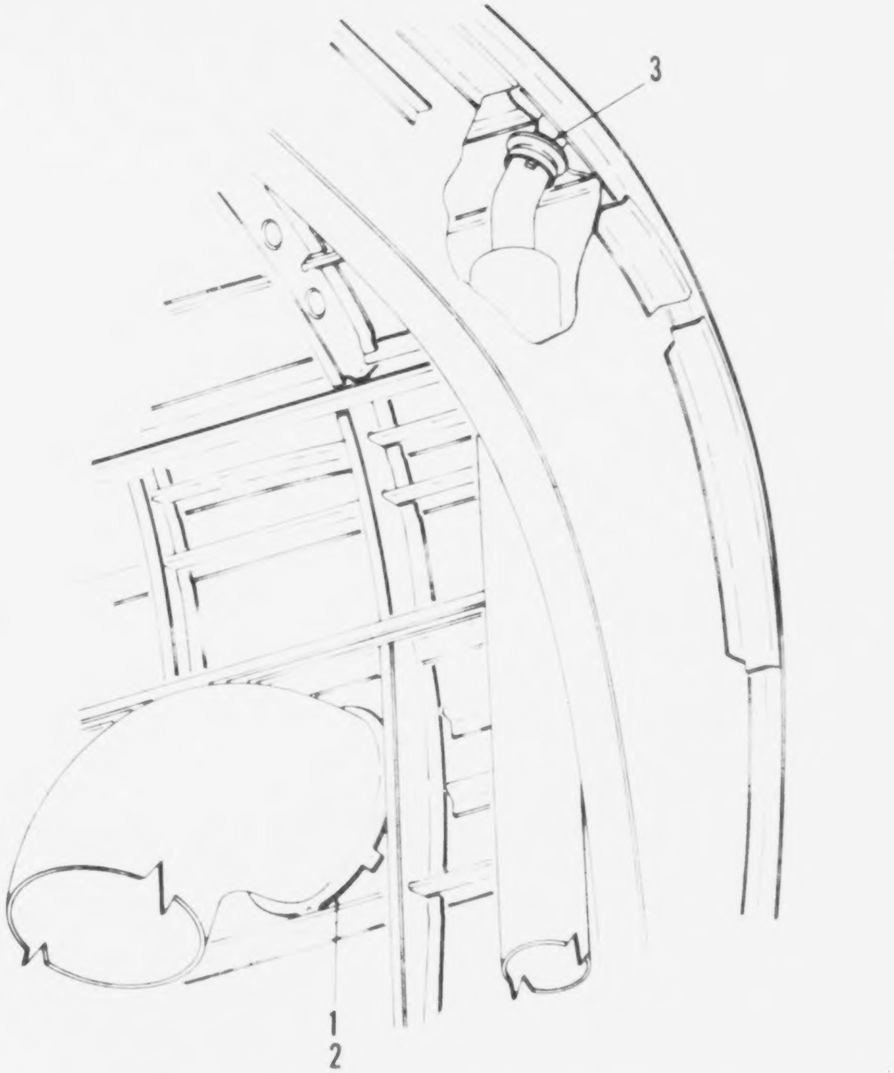

1 FILLET SEAL ALONG EDGE
2 COVER FASTENER HEADS WITH SEALING COMPOUND
3 FILLET SEAL AROUND EDGE OF SKIN CUTOUT AND TUBE USE SEALANT (E339)

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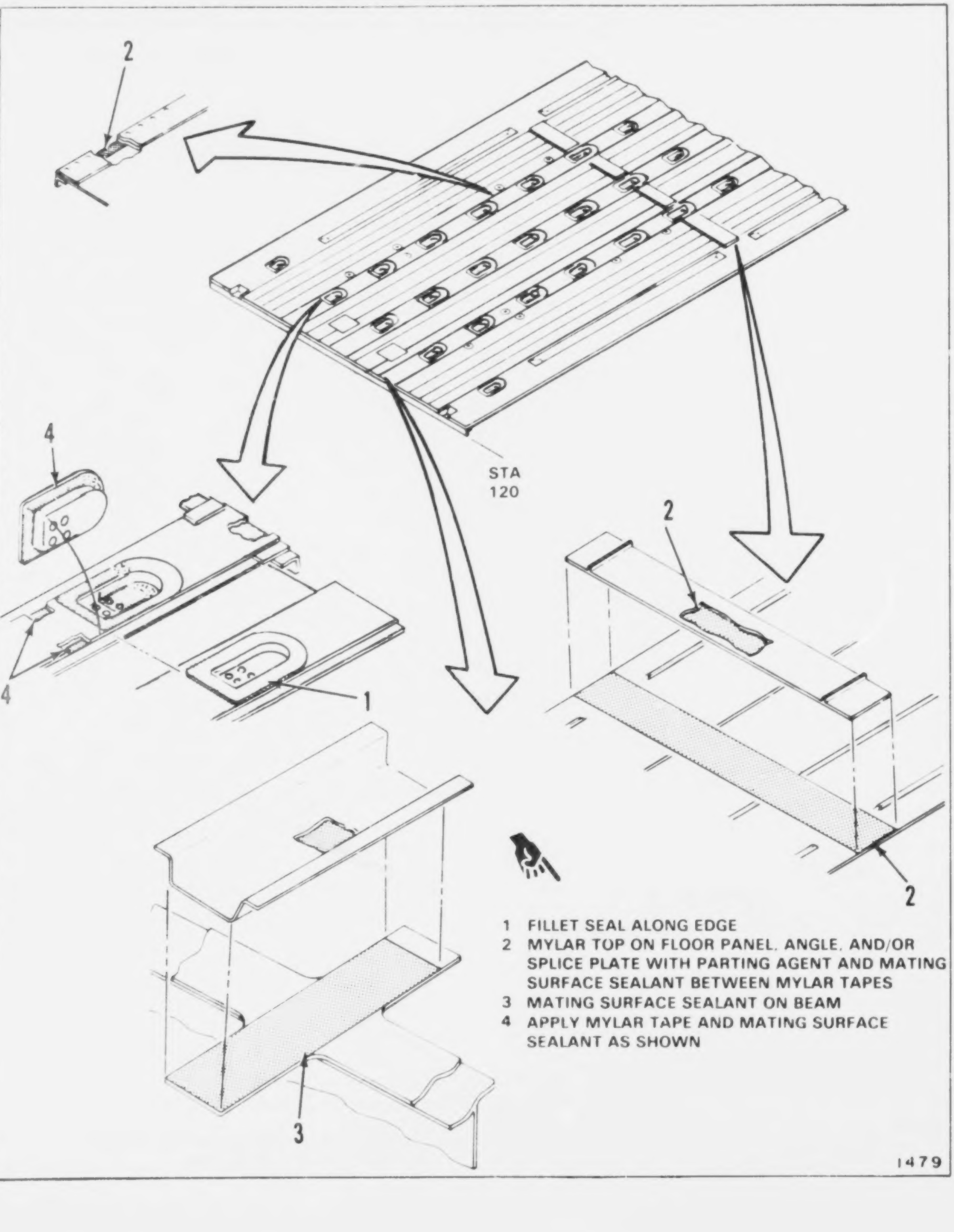

1 FILLET SEAL ALONG EDGE
2 MYLAR TOP ON FLOOR PANEL, ANGLE, AND/OR SPLICE PLATE WITH PARTING AGENT AND MATING SURFACE SEALANT BETWEEN MYLAR TAPES
3 MATING SURFACE SEALANT ON BEAM
4 APPLY MYLAR TAPE AND MATING SURFACE SEALANT AS SHOWN

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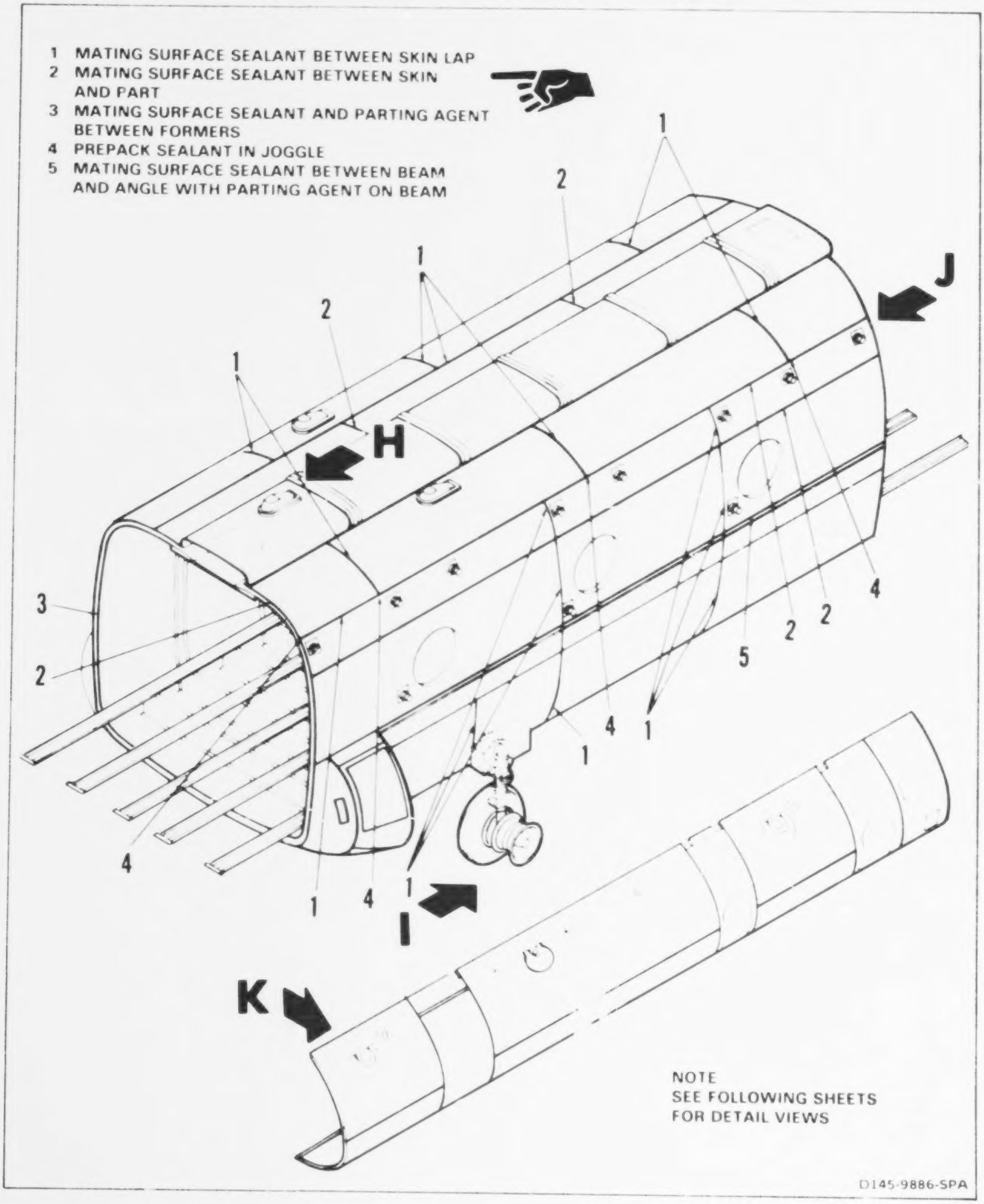

1 MATING SURFACE SEALANT BETWEEN SKIN LAP
2 MATING SURFACE SEALANT BETWEEN SKIN AND PART
3 MATING SURFACE SEALANT AND PARTING AGENT BETWEEN FORMERS
4 PREPACK SEALANT IN JOGGLE
5 MATING SURFACE SEALANT BETWEEN BEAM AND ANGLE WITH PARTING AGENT ON BEAM

NOTE
SEE FOLLOWING SHEETS FOR DETAIL VIEWS

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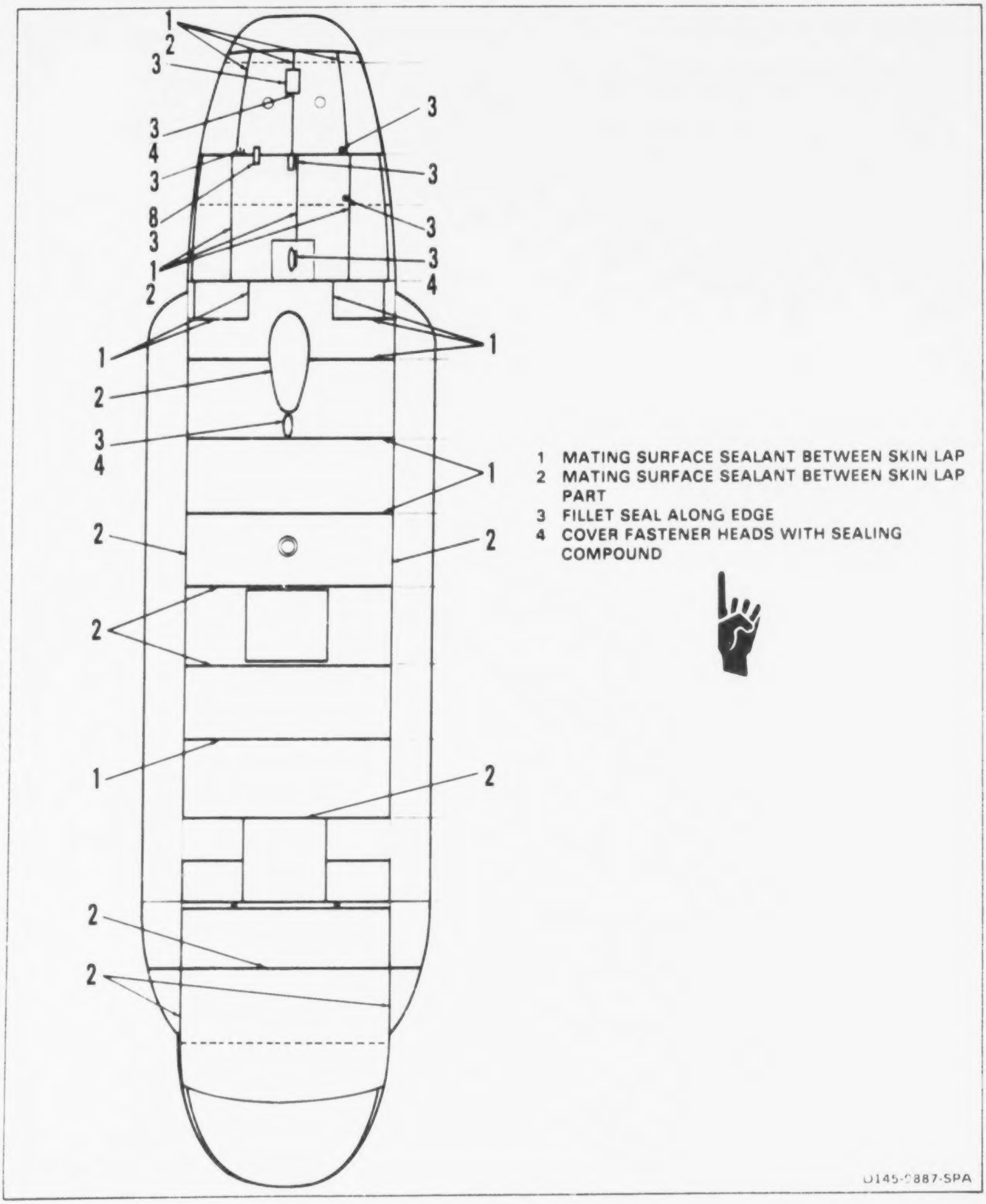
2-324 FUSELAGE SEALING (Continued) 2-324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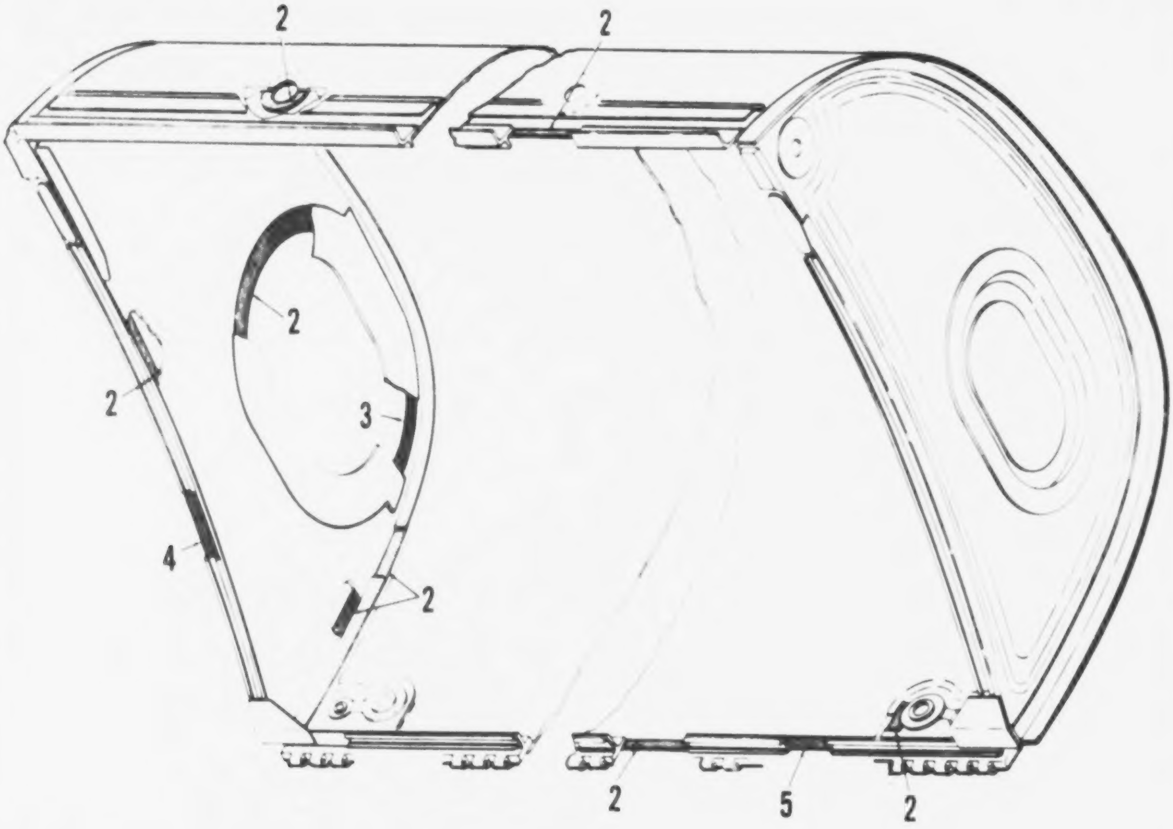
1 MATING SURFACE SEALANT BETWEEN SKIN LAP
2 MATING SURFACE SEALANT BETWEEN SKIN LAP PART
3 FILLET SEAL ALONG EDGE
4 COVER FASTENER HEADS WITH SEALING COMPOUND

GO TO NEXT PAGE

2-324 FUSELAGE SEALING (Continued) 2-324

1 SURFACE SEALANT BETWEEN SKIN LAP
2 SURFACE SEALANT BETWEEN SKIN AND PART
3 SURFACE SEALANT BETWEEN ADAPTER AND TEE CAP
4 SURFACE SEALANT BETWEEN CHANNEL AND RETAINER
5 SURFACE SEALANT BETWEEN HINGE AND RETAINER



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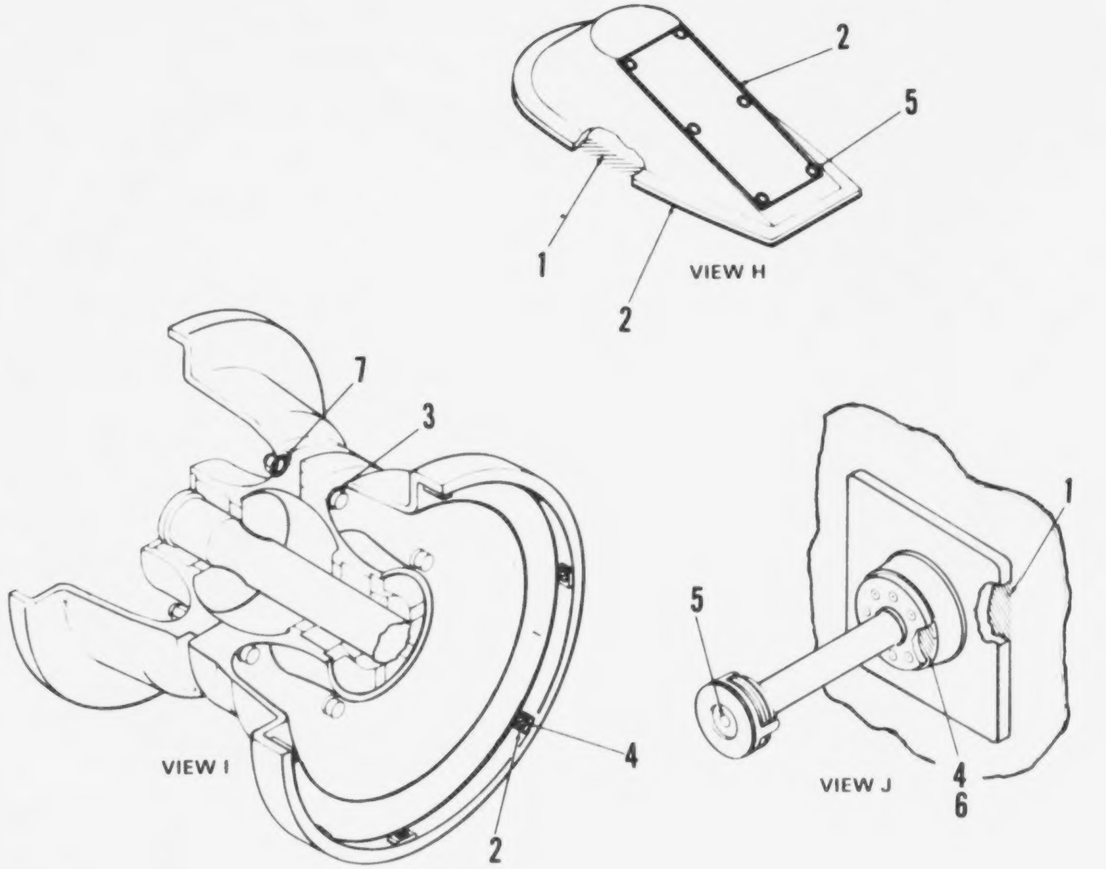
2-324 FUSELAGE SEALING (Continued) 2-324

1 MATING SURFACE SEALANT BETWEEN SKIN AND PART
2 FILLET SEAL ALONG EDGE
3 FILLET SEAL AROUND FASTENER HEAD
4 COVER FASTENER HEADS WITH SEALING COMPOUND
5 APPLY SEALANT TO FASTENER BEFORE INSTALLATION
6 MATING SURFACE SEALANT ON STANDOFF ATTACHING SURFACE
7 APPLY PARTING AGENT TO EXPOSED SURFACES OF BOLT, NUT, AND WASHER, APPLY SEALANT OVER PARTING AGENT
8 APPLY FILLET SEAL FROM STA 482 TO 630.50 AFTER JOINING CROWN PANEL AND PYLON



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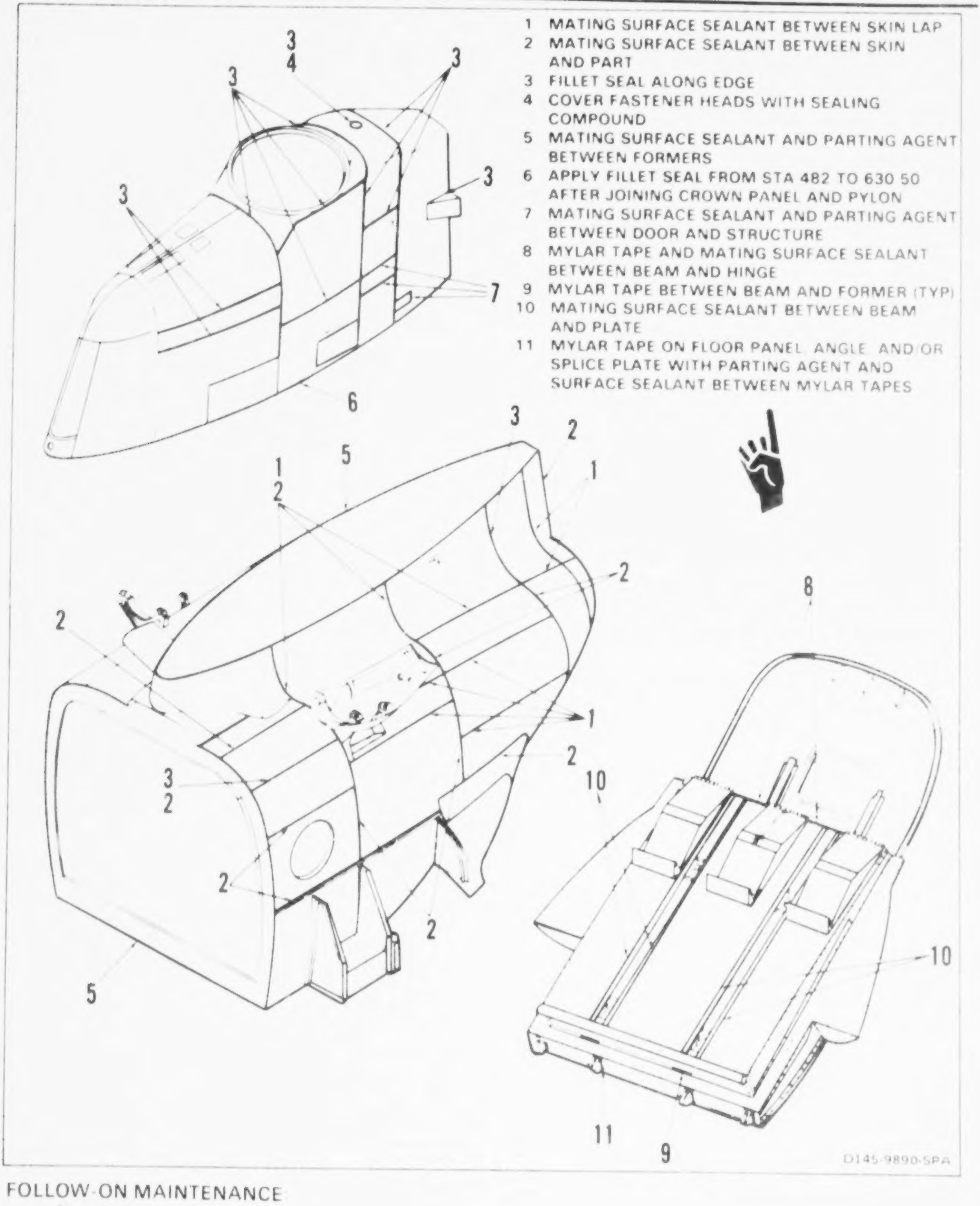
2-324 FUSELAGE SEALING (Continued) 2-324



1 MATING SURFACE SEALANT BETWEEN SKIN LAP
2 MATING SURFACE SEALANT BETWEEN SKIN AND PART
3 FILLET SEAL ALONG EDGE
4 COVER FASTENER HEADS WITH SEALING COMPOUND
5 MATING SURFACE SEALANT AND PARTING AGENT BETWEEN FORMERS
6 APPLY FILLET SEAL FROM STA 482 TO 630 50 AFTER JOINING CROWN PANEL AND PYLON
7 MATING SURFACE SEALANT AND PARTING AGENT BETWEEN DOOR AND STRUCTURE
8 MYLAR TAPE AND MATING SURFACE SEALANT BETWEEN BEAM AND HINGE
9 MYLAR TAPE BETWEEN BEAM AND FORMER (TYP)
10 MATING SURFACE SEALANT BETWEEN BEAM AND PLATE
11 MYLAR TAPE ON FLOOR PANEL, ANGLE, AND/OR SPLICE PLATE WITH PARTING AGENT AND SURFACE SEALANT BETWEEN MYLAR TAPES

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

SECTION VI
GENERAL INFORMATION FOR MISCELLANEOUS DATA

2-325 REPAIR HINGES

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

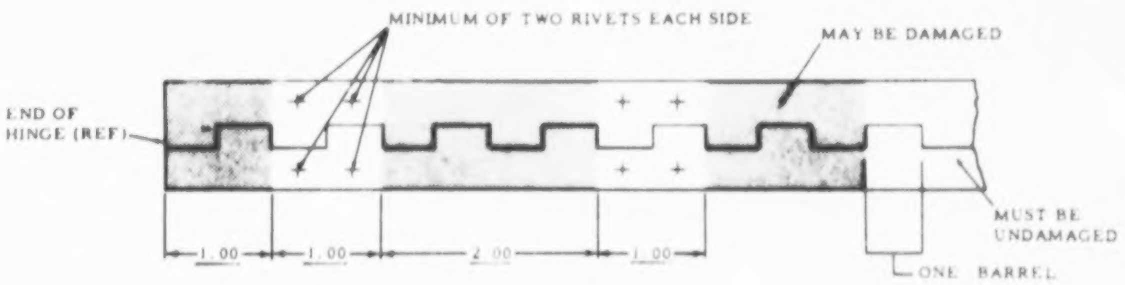
Equipment Condition:
As Required

General Safety Instructions:
As Required

1 Repair hinges by removing segments or barrels. Determine maximum allowable damage prior to beginning repair. See table

2 Replace entire hinge assembly if damage exceeds maximum allowable

TYPE A INSTALLATION



DAMAGE CRITERIA ALLOWABLE CONDITIONS:

1. END OF HINGE MAY HAVE TWO BARRELS FAILED PROVIDED:
   a. THE NEXT TWO BARRELS ARE UNDAMAGED
   b. EACH UNDAMAGED SEGMENT HAS AT LEAST TWO ATTACHMENT RIVETS ON EACH SIDE
2. ANY FOUR CONSECUTIVE INNER BARRELS (AWAY FROM HINGE END)MAY BE FAILED PROVIDED:
   a. TWO ADJACENT BARRELS ON EACH END OF THE FAILED SECTION ARE UNDAMAGED
   b. EACH UNDAMAGED SEGMENT HAS AT LEAST TWO ATTACHMENT RIVETS ON EACH SIDE

SEE SHEET 2 FOR GENERAL NOTES

42 X 34

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Hinge Repairs (Sheet 1 of 4)

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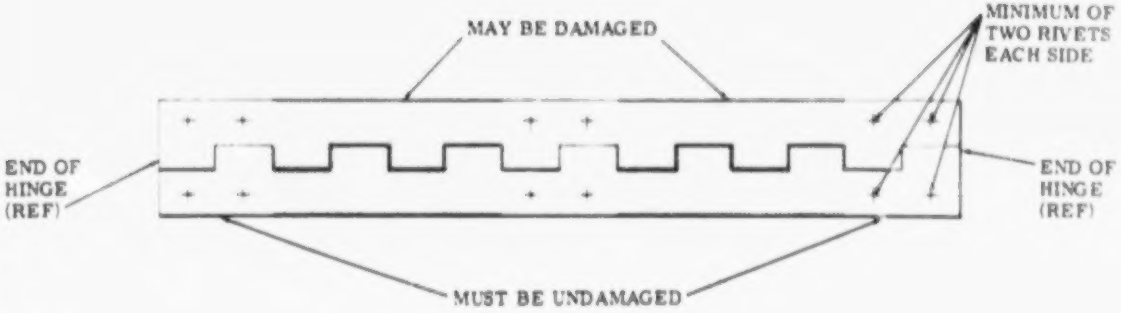
TYPE B INSTALLATION


MAY BE DAMAGED
MINIMUM OF TWO RIVETS EACH SIDE
END OF HINGE (REF)
END OF HINGE (REF)
MUST BE UNDAMAGED

DAMAGE CRITERIA - ALLOWABLE CONDITIONS:

1. EACH END MUST HAVE TWO UNDAMAGED BARRELS WITH TWO ATTACHMENT RIVETS ON EACH SIDE
2. ANY FOUR CONSECUTIVE INNER BARRELS (AWAY FROM HINGE END) MAY BE FAILED PROVIDED:
    - A. TWO ADJACENT BARRELS ON EACH END OF THE FAILED SECTION ARE UNDAMAGED
    - B. EACH UNDAMAGED SEGMENT HAS AT LEAST TWO ATTACHMENT RIVETS ON EACH SIDE

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. REMOVE ALL BURRS AND SHARP EDGES AND ANY DISTORTED SECTION WHICH MAY CAUSE SUBSEQUENT DAMAGE
C. SHADED AREAS MAY BE COMPLETELY MISSING
D. REFER TO SHEET 3 FOR SPECIFIC APPLICATIONS

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Hinge Repairs (Sheet 2 of 4)

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HINGE PART NO.	NOMENCLATURE	MATERIAL	TYPE OF INSTALLATION AND REPAIR (SEE NOTES)
114S3607-79	Leaf-butt hinge-drip tray-aft xmsn	MS20001	A
114S2609-11	Hinge, assy-step-cabin-side	MS20001	F
114S1632-21	Leaf, butt hinge-door access-nose	MS20001PH4	A
114S1901-81	Hinge, fairing-fwd pylon	MS20001PH6	B
114S5901-71	Leaf, butt hinge-fwd 1. gr pod sta 245	MS20001PH6	A
114S6107-43	Hinge, ramp sta 98.955	MS20001PH9	A
145S6102-5	Hinge, ramp sta 98.955 with ■	VS90560	A
114S5910-35	Hinge, half-fairing assy-aft 1. gr pod	MS20001PH10	C
114S6701-31	Leaf, butt hinge-aft 1. gr pod	MS20001PX12	C
114S6701-32	Leaf, butt hinge-former-ramp sta 98.955	MS20001PX12	C
114S6701-33	Leaf, butt hinge-former-ramp sta 98.955	MS20001PX14	C
114S2905-313	Hinge-tunnel cover	MS20257-4-6.50	C
114S3904-19	Hinge, door access	VS20101-1-2	C
114S3903-15	Leaf, butt hinge-access door-xmsn	VS20101-1-2	C
114S3903-17	Leaf, butt hinge-access door-xmsn	VS20101-1-2	C
114SS5907-65	Leaf, butt hinge-aft 1. gr pod-sta 482	VS20101-1-2	C
114S5907-63	Hinge, half-aft 1. gr. pod-sta 482	VS20101-1-2	C
114S3904-17	Hinge, door-access-sta 482-534	VS20101-1-2	C
114S3905-35	Hinge, half-access door-hyd. test	VS20101-1-4	G
114S1853-15	Hinge, assy-upper-cabin door	VS60904	D
114S1853-17	Hinge, assy-upper-cabin door	VS60904	C
114S2850-1	Hinge, assy-elect. pod compartment	VS60904	D
114S2506-69	Hinge, structural-bottom cabin-sta 180-440	VS90522	E
114S6604-21	Hinge, pad-cargo loading ramp-aux	VS90565-2014T6	E
114P8012-1	Hinge, half-cowl-eng	AL ALY 356T6	D
114P8013-2	Hinge, half-cowl-eng	AL ALY 356T6	D
114P8011-5	Leaf, assy-access cover-eng	AL ALY 2024-T4	D
114P8011-6	Leaf, assy-access cover-eng	AL ALY 2024-T4	D
114P8013-10	Leaf, assy-access cover	MIL-T-9046 Class II casting	D
114P8014-10	Hinge, half-cowl	Invest casting	D
114P8014-9	Hinge, half-cowl	SST casting 17-4PH	D
114S2610-35	Hinge, half-cowl	MS20001PY4-400	C
114S3615-9	Hinge, panel assy-apu	MS20001PY4	C
114S5612-12	Hinge, step-foldout-pod	MS00001H8-940	A
114S5612-19	Hinge, step-foldout-pod	MS00001H8-940	A
114S5901-65	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-66	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-72	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-115	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-121	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-128	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-129	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-130	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5901-131	Hinge, access panel inst.-fwd 1. gr-sta 245	MS20001PH6	A
114S5902-19	Hinge, pnl. instr. ext pwr recep-sta 160-180	VS20101-2-2	C
114S5902-21	Hinge, pnl. instr. ext power recep	VS20101-2-2	C
114S5931-43	Hinge, access pnl. instl. pod-sta 438.51-460	VS90528X18-7-7075T6	A
114S5931-44	Hinge, access pnl. instl. pod	VS90528X18-7-7075T6	A

Hinge Repairs (Sheet 3 of 4)

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2-325 REPAIR HINGES (Continued) 2-325

HINGE PART NO.	NOMENCLATURE	MATERIAL	TYPE OF INSTALLATION AND REPAIR (SEE NOTES)
114S6710-2	Hinge, cargo loading ramp aux	VS20102-1	B
114S6710-3	Hinge, cargo loading ramp aux	VS20103-3	B
114S1632-33	Hinge, door assy-nose compartment	VS90527	B
114S4901-39	Hinge, leading edge fairing assembly	MS20001PH6	B
114S4901-40	Hinge, leading edge fairing assembly	MS20001PH6	B
114S4101-37	Hinge, aft pylon former station 482.00	MS2001PH6	B
114S4101-38	Hinge, aft pylon former station 482.00	MS2001PH6	B

NOTES

DAMAGE CRITERIA — ALLOWABLE CONDITIONS:

A. Type A installation. (Sheet 1.)
  1. End of hinge may have two barrels failed provided:
    a. The next two barrels are undamaged.
    b. Each undamaged segment has at least two attachment rivets on each side of the hinge.
  2. Any four consecutive inner barrels (away from hinge end) may be failed provided:
    a. Two adjacent barrels on each end of the failed section are undamaged.
    b. Each undamaged segment has at least two attachment rivets on each side.

B. Type B installation. (Sheet 2.)
  1. Each end must have two undamaged barrels with two attachment rivets on each side.
  2. Any four consecutive inner barrels (away from hinge end) may be failed provided:
    a. Two adjacent barrels on each end of the failed section are undamaged.
    b. Each undamaged segment has at least two attachment rivets on each side.

C. Type C installation. Non-continuous hinge. Replace hinge if either end has one full failed barrel.

D. Type D installation. Single connection hinge. Replace if failed.

E. Type E installation. Stress critical. Replace if any barrel has failed.

F. Type F installation — Spring type. Replace if more than two end barrels or one barrel adjacent to spring has failed.

G. Type G installation — Multiple section continuous hinge. Replace if more than one whole section of barrels has failed.

Hinge Repairs (Sheet 4 of 4)

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-326 RIVETS

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

Refer to TM 55-1500-204-25/1 for riveting procedures and identification. Additional information on rivets, including alloy selection, row distance, and pitch, as may be necessary to accomplish repairs is shown.

1. Acceptable Rivet Inspection Criteria.
   a. The head of a flush rivet should be flush with the surface with no significant deviation above or below this level. The rivet should be centered in the countersink to provide continuous contact around the head of the rivet.
   b. The head of a protruding head rivet should provide continuous contact with the surface; that is, there should be no significant head tilt relative to the surface.
   c. The tails of both of the above rivets should provide continuous circumferential contact between the tail and the local surface.
   d. There should be no damage to the rivet or local surface such as that resulting from bucking bar slippage.
   e. A truly loose rivet will be moveable by hand and should be replaced.

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2-326 RIVETS (Continued) 2-326

RIVET SELECTION AND SPACING WHEN REPAIRING ALUMINUM ALLOY PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.020	* 3	** 4	0.375	0.500	0.437
0.025	* 4	** 5	0.500	0.625	0.500
0.032	* 4	** 5	0.562	0.687	0.500
0.040	* 5	** 6	0.687	0.812	0.625
0.051	* 5	** 6	0.687	0.750	0.562
0.064	*** 6	** 6	0.812	1.062	0.625
0.072	*** 6	** 6	0.750	1.062	0.687
0.081	*** 6	** 6	0.625	0.937	0.687
0.091	*** 6	** 6	0.625	0.750	0.687
0.102	10	** 6	1.562	1.812	0.875
0.250	10	—	1.187	1.375	0.875

* MS20470AD or MS20426AD

** MS20600AD or MS20601AD

*** MS20470DD or MS20426DD AN hex head bolt or steel lockbolts (HUCK MFG. CO).

RIVET SELECTION AND SPACING WHEN REPAIRING CORROSION-RESISTANT STEEL PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.025	*4	**5	0.562	0.687	0.500
0.030	*4	**5	0.437	0.562	0.500
0.036	*5	**6	0.750	0.875	0.625
0.042	*5	**6	0.687	0.812	0.625
0.042	*6	**6	0.875	1.00	0.687
0.060	*6	**6	0.812	1.062	0.687

* MS20615M or MS20427M

** MS20600M or MS20601M

RIVET SELECTION AND SPACING WHEN REPAIRING MAGNESIUM ALLOY PARTS

GAGE OF THICKEST PIECE	TYPE OF REPAIR RIVET		PITCH		ROW DISTANCE
	STANDARD	BLIND	MINIMUM	MAXIMUM	
0.020	*3	**4	0.375	0.500	0.437
0.025	*4	**5	0.500	0.625	0.500
0.032	*4	**5	0.562	0.687	0.500

* MS20470B or MS20426B

** MS20600B or MS20601B

NOTES: A. All dimensions are shown in inches unless otherwise noted.

B. When installing flush-type rivets, material must be dimple countersunk if 0.063 or thinner, and machine countersunk if thicker than 0.063.

C. Maintain 2D edge distance when installing all rivets. See sheet 2 of this figure for minimum acceptable edge distance.

Rivet Spacing, Selection, and Acceptability Limits (Sheet 1 of 6)

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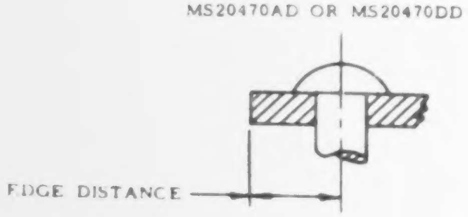
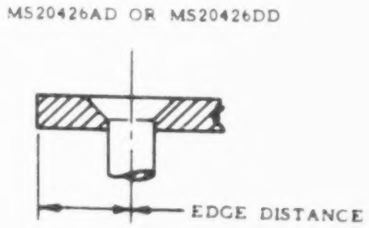
MINIMUM ACCEPTABLE RIVET EDGE DISTANCES FOR ALUMINUM ALLOY RIVETS





MINIMUM RIVET EDGE DISTANCES

SHEET THICKNESS \ RIVET DIA IN 32NDS	NONFLUSH-TYPE RIVETS				FLUSH - TYPE RIVETS			
	3	4	5	6	3	4	5	6
0.020	0.156	0.218	0.265	--	0.187	0.281	0.328	--
0.025	0.156	0.218	0.265	0.328	0.187	0.281	0.328	0.390
0.032	0.140	0.218	0.265	0.328	0.171	0.281	0.328	0.390
0.040	0.125	0.187	0.234	0.328	0.156	0.250	0.328	0.390
0.051	0.109	0.156	0.203	0.312	0.140	0.218	0.296	0.375
0.064	--	0.140	0.187	0.265	--	0.203	0.265	0.328
*0.072	--	0.140	0.171	0.250	--	0.203	0.250	0.312
*0.081	--	0.125	--	0.234	--	--	0.234	0.296
*0.102	--	--	--	0.203	--	--	--	0.265

* USE MS20470DD OR MS20426DD RIVETS

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. MINIMUM EDGE DISTANCES SHOWN ARE APPLICABLE ONLY TO ROWS OF RIVETS CONTAINING THREE OR MORE RIVETS, AND FURTHER LIMITED TO A MAXIMUM OF 30 PERCENT OF TOTAL RIVETS IN A ROW

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Rivet Spacing, Selection, and Acceptability Limits (Sheet 2 of 6)

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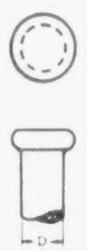
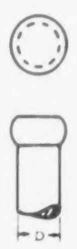
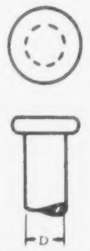
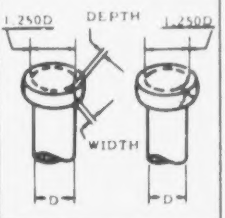
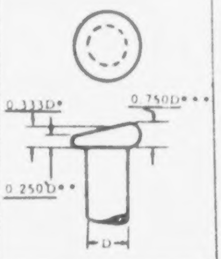
2-326 RIVETS (Continued) 2-326

ACCEPTABILITY LIMITS

RIVET DIA IN 32NDS	DIMENSIONS OF SHOP HEAD						CRACKED HEADS	COCKED (BEVELED) HEADS	
	NOMINAL								
	DIAMETER 1.5D	HEIGHT 0.5D	MINIMUM DIAMETER 1.333D	MAXIMUM HEIGHT 0.666D	MAXIMUM DIAMETER 1.666D	MINIMUM HEIGHT 0.333D		MINIMUM **	MAXIMUM ***
	COND 1		COND 2		COND 3		COND 4	COND 5	
3	0.141	0.047	0.122	0.062	0.157	0.031	REFER TO NOTE D	0.023	0.070
4	0.188	0.063	0.163	0.083	0.208	0.042		0.031	0.094
5	0.234	0.078	0.203	0.104	0.260	0.052		0.039	0.117
6	0.281	0.094	0.245	0.125	0.312	0.063		0.047	0.141
8	0.375	0.125	0.325	0.167	0.416	0.083		0.063	0.188
10	0.469	0.156	0.406	0.208	0.520	0.104		0.078	0.235
12	0.562	0.188	0.487	0.250	0.625	0.125		0.094	0.281
LIMITING DEFECT							ACCEPTABLE NOT ACCEPTABLE 		
REMARKS			RIVETS NOT CONFORMING TO THE ABOVE LIMITATIONS CAN BE RESTRUCK ON SHOP HEAD IF HEAD THICKNESS PERMITS. REFER TO NOTE B.				REFER TO NOTE D.	MEAN HEIGHT CANNOT BE LESS THAN 0.333D	

* MEAN HEIGHT OF SHOP HEAD ** HEIGHT OF SHOP HEAD AT THINNEST PART *** HEIGHT OF SHOP HEAD AT THICKEST PART

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DO NOT RESTRIKE TYPE DD RIVETS AFTER INITIAL DRIVING.

C. THE LIMITS SHOWN ARE THE MINIMUM ALLOWABLE AND SHALL NOT BE APPLIED TO DYNAMICALLY BALANCED COMPONENTS

D. SEE SHEET 6 OF THIS FIGURE FOR CLARIFICATION OF CRACKED HEADS AND APPLICABLE ACCEPTABLE LIMITS

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Rivet Spacing, Selection, and Acceptability Limits (Sheet 3 of 6)

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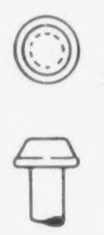
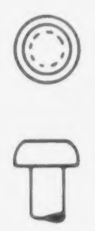
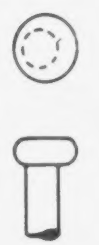
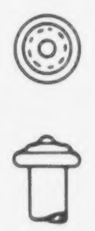
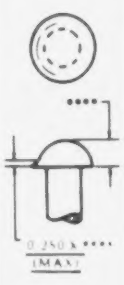
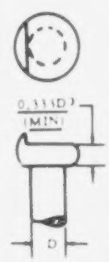
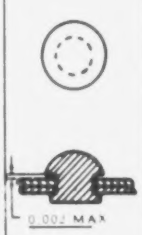
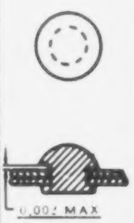
2-326 RIVETS (Continued) 2-326

ACCEPTABILITY LIMITS

COND	CONCENTRIC STEPPED OR TRUNCATED CONICAL HEAD	FLATTENED HEAD	OFFSET HEAD	CONCENTRIC RINGED HEAD	CUT HEAD	STEPPED HEAD	INCOMPLETELY DRIVEN (OPEN) HEAD	OPEN HEAD (TILTED)
	COND 6	COND 7	COND 8	COND 9	COND 10	COND 11	COND 12	COND 13
LIMITING DEFECT								
REMARKS	CAN BE USED FOR SHOP HEAD AND RIVET DIA 0.1875 AND GREATER	THE USE OF A FLAT SET IS PERMITTED ON THE MANUFACTURED HEAD	THE HEAD CAN BE TANGENT TO THE SHANK NOT ACCEPTABLE IF THE HOLE SHOWS OR FOR USE IN SECTION OF INTEGRAL TANKS	NOT ACCEPTABLE. PROBABLY CAUSED BY THE USE OF A SMALL RIVET SET	MAX. DEPTH IS 1/4 HEAD HEIGHT	STEPPED PART OF HEAD TO BE NOT LESS THAN ALLOWABLE MINIMUM HEAD THICKNESS. NOT NECESSARY TO CHIP OR FILE THE HIGH PART	NOT ACCEPTABLE IF RIVET IS LOOSE OR IF A 0.002 FEELER GAGE CAN BE INSERTED TO SHANK. RIVET CAN BE RESTRUCK TO REDUCE CLEARANCE NOT ACCEPTABLE FOR USE IN SECTIONS OF INTEGRAL TANKS. REFER TO NOTE B.	

**** HEIGHT OF MANUFACTURED HEAD

NOTES

A. ALL DIMENSIONS ARE IN INCHES

B. DO NOT RESTRIKE TYPE DD RIVETS

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Rivet Spacing, Selection, and Acceptability Limits (Sheet 4 of 6)

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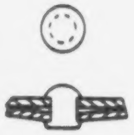
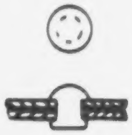
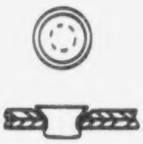
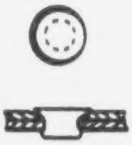
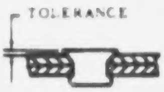
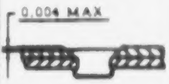
ACCEPTABILITY LIMITS

CONDITION	SWELLED RIVET (SHEET BUCKLED AT RIVET)		OPEN	PARTIALLY OPEN	PROJECTING HEAD	DEPRESSED HEAD
	INTERNAL GAP	OPEN GAP	COUNTERSUNK RIVET	COUNTERSUNK RIVET	COUNTERSUNK RIVET	COUNTERSUNK OR DIMPLED RIVET
	COND 14	COND 15	COND 16	COND 17	COND 18	COND 19
[illegible] DEFECT						
REMARKS	ACCEPTABLE IF CASE IS ISOLATED, LIMITED TO NOT MORE THAN THREE NON-CONSECUTIVE RIVETS IN A ROW OF TEN RIVETS	RESTRIKE IF A 0.015 FEELER GAGE CAN BE INSERTED TO SHANK. IF THIS DOES NOT CORRECT, REMOVE RIVET AND CLEAN OUT CHIPS. MAX EDGE GAP 0.015, OPEN GAP NOT ACCEPTABLE IN INTEGRAL TANK SECTIONS. REFER TO NOTE B.	NOT ACCEPTABLE. IF SKIN THICKNESS PERMITS, REMOVE RIVET AND RE-COUNTER SINK FOR NEXT LARGER DIAMETER. IF APPROVED EQUIPMENT IS AVAILABLE, THE SHOP HEAD CAN BE FORMED IN THE COUNTERSINK AND ANY PROJECTION SHAVED FLUSH		TYPICAL MAXIMUM TOLERANCE IS 0.004. SPECIFIC TOLERANCES ARE DEPENDENT UPON LOCATIONS	REPLACE RIVET IF HEAD IS MORE THAN 0.004 BELOW SURFACE. IF MACHINE COUNTERSUNK AND SKIN THICKNESS PERMITS, REPLACE WITH NEXT LARGER DIAMETER RIVET. FORM SHOP HEAD OF REPLACEMENT RIVETS IN THE COUNTERSINK

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. DO NOT RESTRIKE TYPE DD RIVETS

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Rivet Spacing, Selection, and Acceptability Limits (Sheet 5 of 6)

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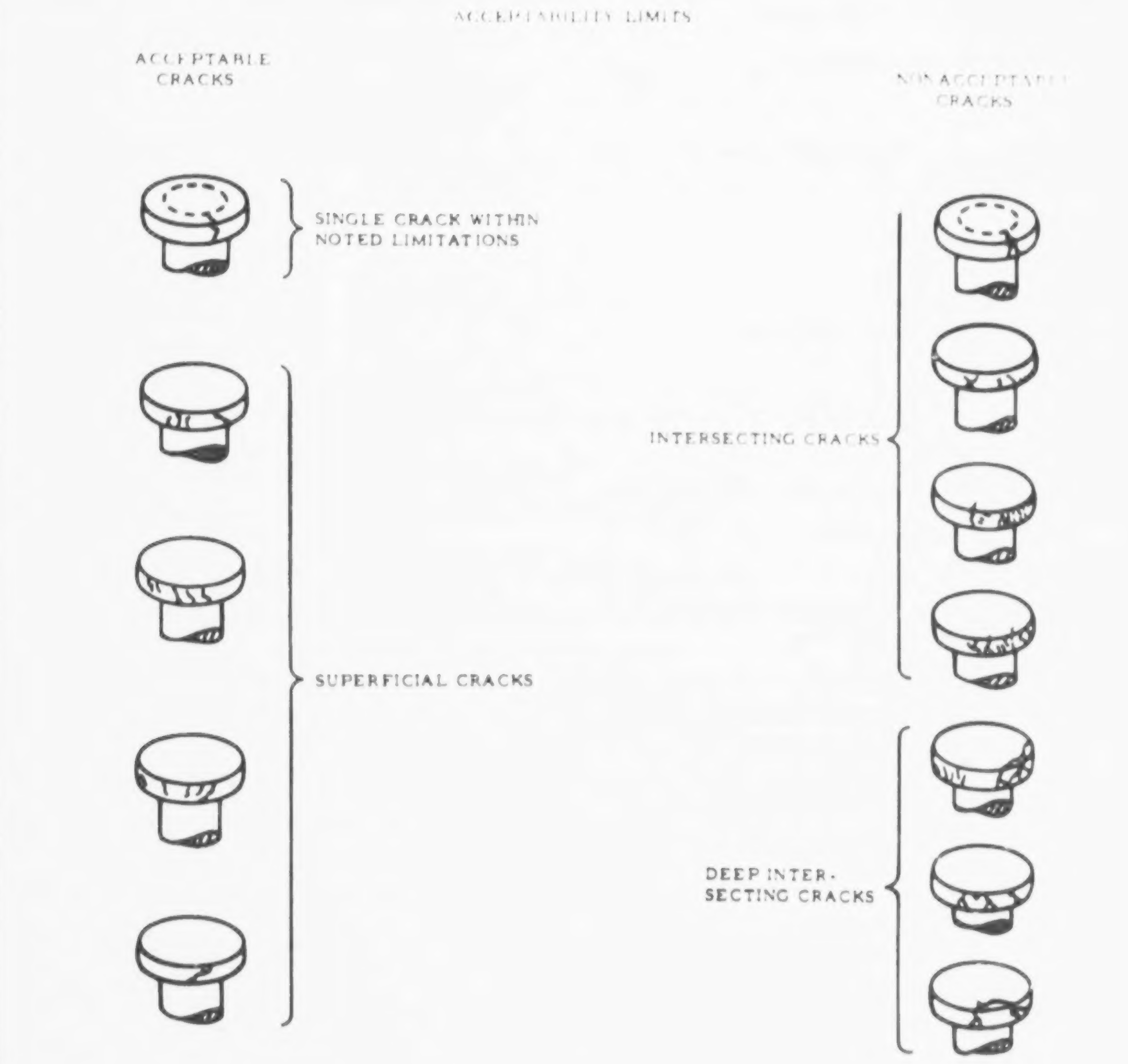
2-326 RIVETS (Continued) 2-326


ACCEPTABILITY LIMITS
ACCEPTABLE CRACKS
NON-ACCEPTABLE CRACKS
SINGLE CRACK WITHIN NOTED LIMITATIONS
SUPERFICIAL CRACKS
INTERSECTING CRACKS
DEEP INTERSECTING CRACKS

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. CRACKED HEADS ARE ACCEPTABLE UNDER THE FOLLOWING CONDITIONS:
  1. DEPTH OF CRACK LESS THAN 1/8 THE SHANK DIAMETER
  2. WIDTH OF CRACK LESS THAN 1/16 THE SHANK DIAMETER
  3. LENGTH OF CRACK CONFINED TO AN AREA ON THE HEAD WITHIN A CIRCLE HAVING A MINIMUM DIAMETER OF 1-1/4 TIMES THE SHANK DIAMETER
  4. CRACKS SHOULD NOT INTERSECT TO FORM A POTENTIAL CAUSE FOR THE LOSS OF A PORTION OF THE HEAD

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Rivet Spacing, Selection, and Acceptability Limits (Sheet 6 of 6)

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-327 SUBSTITUTE AN BOLTS FOR AN RIVETS 2-327

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Substitute AN bolts for AN rivets as follows:
   - a. When rivets left out on assembly cannot be installed.
   - b. Where edge distance is less than 1 1/2 times diameter of rivet.

NOTE

Minimum edge distance of two times diameter of rivet is preferred.

2. Replacement sizes are as follows:

RIVET ALLOY AND DIA	BOLT SIZE
AD4, 5, 6	AN3 or AN23
AD8	AN4DD or AN24
AD10	AN5DD or AN25
AD12	AN6DD or AN26

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-328 INSTALLATION OF AN BOLTS FOR AN RIVETS 2-328

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Drill rivet hole to size as follows:

RIVET ALLOY AND DIA	BOLT SIZE	HOLE DIA (INCHES)
AD4, 5, 6	AN3 or AN23	0.191 to 0.197
AD8	AN4DD or AN24	0.250 to 0.257
AD10	AN5DD or AN25	0.3125 to 0.3195
AD12	AN6DD or AN26	0.375 to 0.382

2. Install washers AN960 and nuts MS20364 as required.
3. Nuts MS20365 can replace nuts MS20364.

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-329 SUBSTITUTE HUCK, HI-LOK, OR NAS BOLTS 2-329

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Required Personnel:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Conditions:
As Required

General Safety Instructions:
As Required

1 Substitute HUCK, HI-LOK or NAS bolts as follows.

HUCK PART NO.	HI-LOK PART NO.	NAS PART NO.	HOLE DIA (INCHES)
R3001-5	HL18-5	NAS1465	0.161 to 0.164
R3001-6	HL18-6	NAS1466	0.185 to 0.188
R3001-8	HL18-81	NAS1468	0.242 to 0.246
R3001-10	HL18-10	NAS1470	0.307 to 0.310
R3002-5	HL21-5	—	0.161 to 0.164
R3002-6	HL21-6	NAS1956	0.185 to 0.188
R3002-8	HL21-8	NAS1458	0.242 to 0.246
R3002-10	HL21-10	NAS1460	0.307 to 0.310

NOTE

- Dash numbers for all bolts are the same.
- Hole sizes apply to high-shear requirements.
- Hole sizes do not apply to fasteners of splices installed at sta 160.219 and 439.71.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-330 SUBSTITUTE JO-BOLTS OR V-BOLTS 2-330

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

JO-BOLT PART NO.	V-BOLT PART NO.	HOLE DIA (INCHES)
WP 164	BA5A*H	0.164 to 0.168
WP 200	BA6A*H	0.199 to 0.203
WP 260	BA8A*H	0.261 to 0.265
WP 312	BA10A*H	0.313 to 0.317
WF 164	BA5A*F	0.164 to 0.168
WF 200	BA6A*F	0.199 to 0.203
WF 260	BA8A*F	0.261 to 0.265
WF 312	BA10A*F	0.313 to 0.317

NOTE

- JO-BOLTS numbers refer to its diameter.
- The asterisk (*) is the position for the length dash number.
- These fasteners are used mainly in blind installations.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-331 SUBSTITUTE STANDARD BOLTS FOR HUCK BOLTS 2-331

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Bolts or screws can be substituted for HUCK bolts as follows.
   a. Use standard bolts or screw only when HUCK bolts or similar fasteners are not available.
   b. Hole diameter must allow thread through without force, but bolt shank must be push fit.
2. When bolts replace HUCK bolts under shear forces, use NAS1103, NAS1303, NAS464, NAS624 or Hi-lok HL-18 bolts.
3. When bolts replace HUCK bolts under tension forces, use NAS624 bolts.
4. When replacing 3/16-inch diameter (under tension forces) HUCK bolts, use NAS1303 bolts.
5. For emergencies, any steel bolt or screw of tensile strength 125,000 psi and nominal hole diameter may be used. This fastener must be replaced within 25 flight hours.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-332 REPLACE OR SUBSTITUTE BOLTS FOR SCREWS 2-332

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1 AN standard hex head or clevis bolts can replace or substitute screws AN525

2 No AN standard hex head or clevis bolts can be replaced or substituted by screws

3 Aluminum alloy bolts must not replace or substitute steel screws

FOLLOW-ON MAINTENANCE

None

END OF TASK

best copy available

2-333 BOLT HOLE STANDARDS 2-333

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Before replacing fitting installed with bolts, check holes in fitting and structure for oversize or oval.
2. Bolts 0.0625-inches larger in diameter than original bolts can be used. Only one oversize bolt is allowed for each fitting.
3. Edge distance and hole sizes must be as follows.

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2-333 BOLT HOLE STANDARDS (Continued) 2-333

Information on Bolts and Screws

DESCRIPTION	STANDARD PART NUMBER	SIZE AND DIAMETER		HOLE SIZE FIT I LOOSE DRILL		HOLE SIZE FIT II CLOSE DRILL		HOLE SIZE FIT III REAM		HOLES SIZE FIT IV REAM (SPECIAL)		MINIMUM SPACING	MINIMUM EDGE DISTANCE*
Washer Head Screws	AN525-10	10-32	0.190	0.201	-0.000 -0.006	0.191	-0.000 -0.006	0.190	-0.0005 -0.0005	—		11/16	3/8
	AN525-416	1/4-28	0.250	0.261	-0.000 +0.007	0.250	-0.000 -0.007	0.250	-0.0005 -0.0005	—		3/4	1/2
Counter-Sunk Head Screws	NAS-213	10-32	0.189	0.2031	-0.002 -0.004	0.191	-0.002 -0.006	—		—		11/16	3/8
	NAS-214	1/4-28	0.249	0.2656	-0.002 -0.005	0.250	-0.000 -0.007	—		—		3/4	1/2
	NAS-215	5/16-24	0.3115	0.3281	-0.002 -0.005	0.3175	-0.000 -0.007	—		—		—	—
	NAS-216	3/8-24	0.3740	0.3906	-0.002 -0.005	0.375	0.000 -0.007	—		—		—	—
Hex Head Bolts	AN3	10-32	0.189	0.201	0.000 -0.006	0.191	0.000 -0.006	0.190	0.005 -0.0005			11/16	3/8
	AN4	1/4-28	0.249	0.261	0.000 -0.007	0.250	0.000 -0.007	0.250	0.0005 -0.0005	—		3/4	1/2
	AN5	5/16-24	0.312	0.323	0.000 -0.007	0.3125	-0.000 -0.007	0.3125	0.0005 -0.0005	—			
	AN6	3/8-24	0.374	0.386	-0.000 -0.007	0.375	-0.000 -0.007	0.375	-0.0005 -0.0005	—		—	
	AN7	7/16-20	0.437	0.4531	0.000 -0.000	0.4375	0.000 -0.007	0.4375	0.0005 -0.0005	—		—	—
	AN8	1/2-20	0.449	0.5156	0.000 -0.008	0.500	0.000 -0.008	0.500	0.005 -0.0005	—		—	
	AN9	9/16-18	0.562	0.5781	-0.000 -0.008	0.5625	-0.000 -0.008	0.5625	-0.0005 -0.0005	—		—	—
	AN10	5/8-18	0.624	0.6406	-0.000 -0.008	0.625	0.000 -0.008	0.625	-0.0005 -0.0005	—		—	—
	AN12	3/4-16	0.749	0.7656	-0.000 -0.010	0.750	-0.000 -0.010	0.750	0.0005 -0.0005	—		—	—
Clevis Head Bolts	AN23	10-32	0.186	0.199	-0.000 -0.006	0.189	-0.000 -0.006	0.1875	-0.0010 -0.0005	0.1865	-0.0000 -0.0005	11/16	3/8
	AN24	1/4-28	0.248	0.257	-0.000 -0.007	0.250	-0.000 -0.007	0.250	-0.0015 -0.0005	0.2485	-0.0000 -0.0005	3/4	1/2
	AN25	5/16-24	0.311	0.323	-0.000 -0.007	0.3125	-0.000 -0.007	0.3125	-0.0010 -0.0005	0.3115	-0.0000 -0.0005	—	—
	AN26	3/8	0.373	0.386	-0.000 -0.007	0.375	-0.000 -0.007	0.375	-0.0015 -0.0005	0.3735	-0.0000 -0.0005	—	—

*Minimum edge distance applies only to sheet construction

FIT I Used to attach brackets and accessories, or where several bolts attach sheet or plate material
FIT II Used in primary structure where several bolts are used in a rigid joint
FIT III Used where one or two bolts are subject to reversible loads, vibration, or both
FIT IV Used where minimum clearance is to be maintained and units subjected to shear loads

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-334 USE OF NUTS, WASHERS, OR COTTER PINS 2-334

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Use nut and bolt as follows:
   a. Both nut and bolt are same material.
   b. When damaged, replace with same size, material, and hardness as original nut or bolt.
2. Use aluminum alloy washers under aluminum alloy nuts and bolts.
3. Use aluminum alloy washers under steel nut on bolt heads, attaching aluminum parts when not under tension forces, or a controlled torque is not required.
4. Use cadmium plated steel washers under steel nuts or bolt heads attaching steel parts.
5. Use cadmium plated steel washers under steel nuts or bolt heads, attaching aluminum alloy parts when bolt is under tension forces, or a controlled torque is required.
6. Steel spring washers may be used a second time if replacements are not available.
7. Cotter pin must not be used a second time.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-335 USE OF STANDARD BUSHING 2-335

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1 Damaged or worn bushings must be replaced as follows

a Replace with same type, material, and hardness as original bushing

b Use correct length as original bushing

NOTE

Bushing internal and external sizes are important for proper fit

FOLLOW-ON MAINTENANCE

None

END OF TASK

2-336 REMOVE MINOR DAMAGE TO EXTRUSIONS 2-336

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Conditions:
As Required

General Safety Instructions:
As Required

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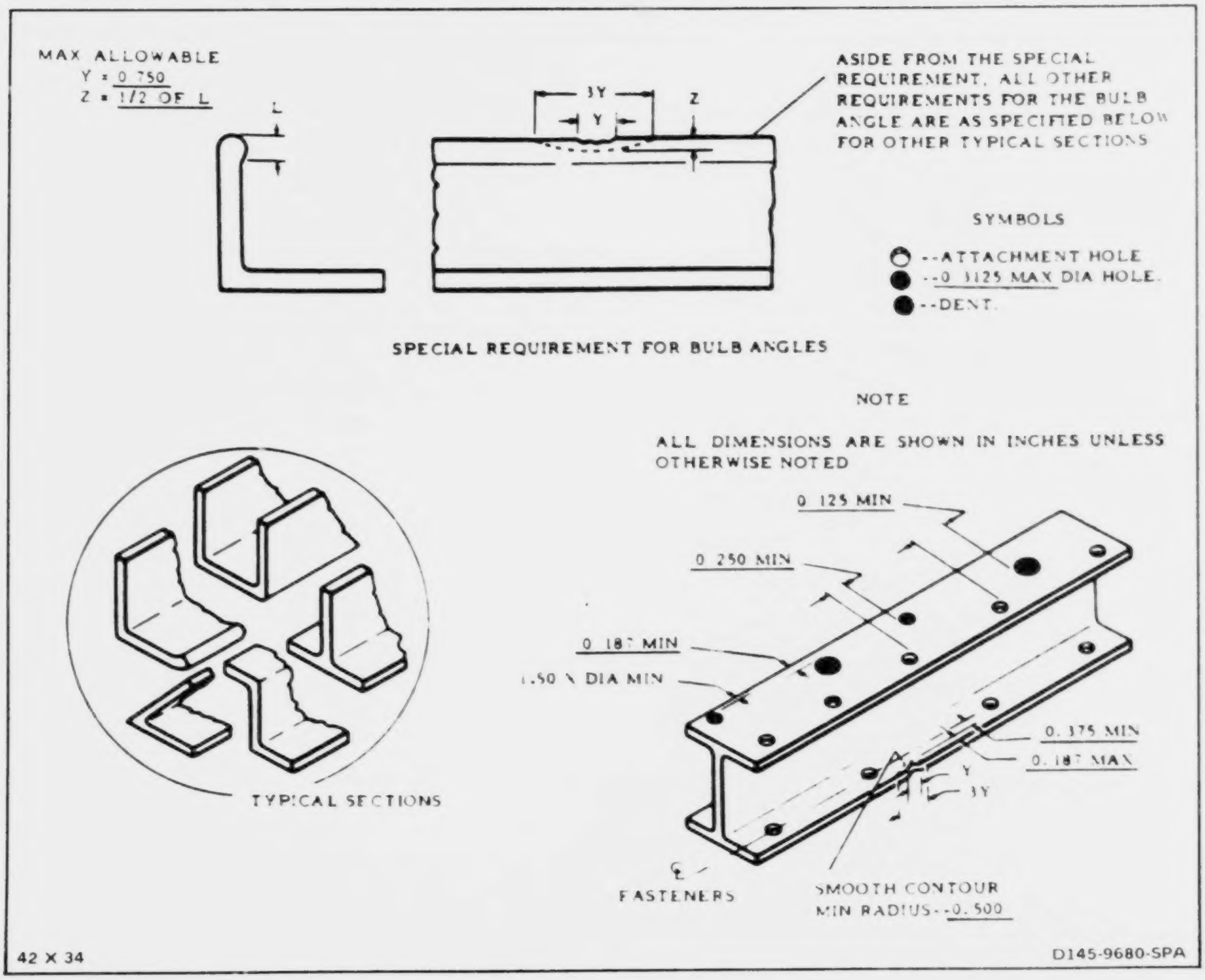
1. Remove nicks, scratches and small damaged areas by burnishing, stop drilling cracks, and plugging small holes. Size of damage that may be removed is as follows:


MAX ALLOWABLE
Y = 0.750
Z = 1/2 OF L
L
3Y
Y
Z
ASIDE FROM THE SPECIAL REQUIREMENT, ALL OTHER REQUIREMENTS FOR THE BULB ANGLE ARE AS SPECIFIED BELOW FOR OTHER TYPICAL SECTIONS
SYMBOLS
○ --ATTACHMENT HOLE
● --0.3125 MAX DIA HOLE.
● --DENT.
SPECIAL REQUIREMENT FOR BULB ANGLES
NOTE
ALL DIMENSIONS ARE SHOWN IN INCHES UNLESS OTHERWISE NOTED
0.125 MIN
0.250 MIN
0.187 MIN
1.50 X DIA MIN
0.375 MIN
0.187 MAX
Y
3Y
℄
FASTENERS
SMOOTH CONTOUR
MIN RADIUS--0.500
TYPICAL SECTIONS
42 X 34
D145-9680-SPA

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2-336 REMOVE MINOR DAMAGE TO EXTRUSIONS (Continued) 2-336

2. Depth after burnishing must not be more than 10 percent of thickness of thinnest leg of section.

CAUTION

Do not remove dent using heat. Damage to material may occur.

3. Punctures, rough dents, cracks, nicks and scratches must only be worked as minor damage if step 2 is not exceeded.
4. Plug all minor damage hole 3/16-inch diameter or less with a tight-fitting rivet or bolt.
5. Plugged or open holes, or burnished areas must clear all radii, and all fasteners a minimum distance of 3/4-inch.
6. Smooth dents not more than maximum burnished depth and a maximum of 1/2-inch diameter are minor damage.
7. Two minor dents that are close must have a 4 inch length of undamaged original section between them.
8. Apply two coats of zinc chromate primer (E291) to burnished area and edges of holes. Use gloves (E186).

FOLLOW-ON MAINTENANCE

As required

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2-337 APPLICATION OF ANTICHAFING TAPE 2-337

INITIAL SETUP

Applicable Configurations:

All

Tools:

Aircraft Mechanic's Tool Kit, NSN 5180-00-323-4876
Source of Low Pressure Compressed Air
Container, Two Quart
Brush
Wood Applicator
Wood Scraper

Materials:

Abrasive Paper (E4 thru E15)
Cloths (E120)
Emery Cloths (E123 thru E127)
Aliphatic Naphtha (E245)
Anti-Chafing Tape (E382)
Tongue Depressors (E424)
Gloves (E186)

Personnel Required:

Aircraft Structural Repairer
Inspector

Equipment Condition:

As Required

NOTE

Anti-chafing tape provides smooth surface over rivet heads and seams.

1. **Remove burrs, sharp edges, roughness, and loose primer** as required on surface to be taped.

WARNING

Do not use more than 30 psi compressed air for cleaning purposes. Debris propelled under pressure can cause injury to eyes. Use source of compressed air under 30 psi and eye protection to prevent injury to personnel.

2. **Remove debris** from surface to be taped. Use compressed air and brush or cloth (E120).

WARNING

Aliphatic naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

3. **Clean surface** to be taped. Use cloth (E120) and aliphatic naphtha (E245). Wear gloves (E186).

4. **Cut length of tape (E382)** enough to cover surface and extend beyond edges of any raised areas.

5. **Apply tape (E382)** to surface. **Smooth tape** working from center to edge to eliminate wrinkles and air pockets. Small voids around rivet or fastener heads are allowed.

INSPECT

FOLLOW-ON MAINTENANCE

As required.

END OF TASK

2-338 APPLICATION OF VELCRO TAPE 2-338

INITIAL SETUP

Applicable Configurations:
All

Tools:
Airframe Repairer's Tool Kit, NSN 5180-00-323-4876
Shears, Bent Trimmers
Needles

Materials:
Adhesive (E30)
Cloths (E120)
Naphtha (E245)
Masking Tape (E388)
Hook Tape (E392)
Velcro Tape (E402)
Thread (E421)
Tongue Depressor (E424)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
43M10 Fabric Repair Specialist
67U30 Inspector

References:
Task 2-323

Equipment Condition:
As Required

NOTE

This tape is used to attach acoustic blankets

1. **To apply tape (E402) to structure** or other surfaces, except blankets, **do the following:**

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

a. Clean surface. Use naphtha (E245) and cloths (E120). Wipe surface dry. Wear gloves (E186).

b. Apply masking tape (E388) around surface.

c. Cut tape (E402) to desired size.

WARNING

Adhesive (E30) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

d. Apply adhesive (E30) to surface and back of tape (E402) (Task 2-323). **Wait at least 1 minute but not more than 5 minutes before doing next step.**

e. Press tape (E402) into place. Trim tape if necessary. When installing tape (E392) or (E402) over rivet heads, apply adhesive level with heads. Use tongue depressor (E424). Keep tape level when positioning over rivets. Do not press tape down between heads. Use clean tongue depressor.

INSPECT

2. **To apply tape (E392) to blankets** or fabrics **do the following:**

a. Cut tape (E392) to desired size.

b. Sew tape (E392) to blanket. Use thread (E421). Trim tape if necessary.

INSPECT

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-339 APPLICATION OF CORFIL FILLER 2-339

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance
Heat Lamp
Goggles
Stiff Brush

Materials:
Soap (E353)
Curing Agent (E158)
Filler (E172)
Naphtha (E245)
Masking Tape (E388)
Abrasive Paper (E9)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Temperature Indicating Strips (E413)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-353

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Vapors of mixture are toxic. Work in well-ventilated room. Avoid skin contact. If skin contact is made, wash immediately with soap (E353) and water.

1. Weigh 7 parts of curing agent (E158) and 100 parts of filler (E172). Use trip balance. Mix thoroughly in polyethylene cup (E157). Use tongue depressor (E424). Wear gloves (E186).

NOTE

Working life of mix is 30 minutes to 2 hours. Handling material in flat shallow tray can extend life to 2 hours.

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. Remove loose filler or dirt. Clean area. Apply naphtha (E245). Use brush. Wear goggles.
3. Wait until naphtha dries completely.
4. Mask all areas around damage. Use masking tape (E388).
5. Pour filler material into damage area to a height slightly higher than core or edge.
6. Allow material to harden 6 hours at 70°F (21°C), or use heat lamps to cure material at 120°F (54°C) for 1 hour. Use temperature indicating strip (E413) to monitor temperature.
7. Blend repairs. Use abrasive paper (E9).
8. Remove sanding dust and chips.
9. Refinish repaired area (Task 2-353).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-340 APPLICATION OF PALMER 611 COMPOUND (AVIM) 2-340

INITIAL SETUP

Applicable Configurations:
All

Tools:
Trip Balance
Rubber Spatula
Heat Lamp

Materials:
Accelerator (E18)
Polyethylene Cup (E157)
Tongue Depressor (E424)
Cloth (E120)
Dry Cleaning Solvent (E162)
Abrasive Paper (E9)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1 Apply Palmer 611 compound (E311) at edge on insert fairings as follows.

a. Weigh 95 parts of compound (E311) and 5 parts of accelerator (E18). Use trip balance. Wear gloves (E186).

b. Stir components in polyethylene cup (E157) and tongue depressor (E424).

NOTE

Compound may be thinned with resin. Accelerator must be added to resin in same proportion as in step a. Working life of compound is 2 1/2 to 3 1/2 hours at 75°F (24°C).

c. Clean parts. Use cloth (E120) soaked with solvent (E162).

d. Roughen cleaned surface lightly. Use abrasive paper (E9). Repeat step c.

e. Apply compound and work in with rubber spatula.

f. Remove excess compound. Use rubber spatula.

2 Cure compound. Use any of following cycles. Use heat lamp and temperature indicating strips (E413).

a. 16 hours at 120°F (49°C).

b. 1 hour at 150°F (66°C), then 16 hours at 70°F (21°C).

c. 1 hour at 200°F (93°C).

d. 1 1/2 hours at 300°F (149°C).

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-341 FINISH REMOVAL (AVIM) 2-341

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
Cloths (E120)
Descaling Compound (E159)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
Prepare Ruststripper Solution (AVIM) (Task 2-342)

1. Strip finish as follows.
   a. Immerse part in ruststripper solution for 15 minutes.
   b. Remove part from solution. Rinse using running water.
   c. Wipe dry. Use cloth (E120).
   d. If any finish remains on part, dip part in compound (E159). Scrub to loosen finish.
   e. Remove part from compound (E159). Rinse using running water.
   f. Wipe dry. Use cloth (E120).

NOTE

Discoloration may appear on cadmium-plated steel parts when part is in solution more than 15 minutes. Discoloration is on surface and not harmful to part.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-342 PREPARE RUSTSTRIPPER SOLUTION (AVIM) 2-342

INITIAL SETUP

Applicable Configurations:
All

Tools:
Electric Heat Gun
Steel Tank
Wood Paddle
Pyrometer

Materials:
Rust Stripper (E363)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

WARNING

Ruststripper (E363) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Add 16 ounces of ruststripper (E363) to 1 gallon of water in steel tanks. Wear gloves (E186).
2. Stir solution. Use wood paddle.
3. Heat solution to 200°F (93°C).

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-343 CORROSION PREVENTION AND TREATMENT 2-343

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
None

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
TM 43-0105
TM 55-1500-345-23

Equipment Condition:
As Required

General Safety Instructions:
As Required

NOTE

When inspecting the helicopter or components, pay particular attention to areas prone to corrosion. When corrosion is found, a prime consideration is to evaluate what corrective action will be required to remove it. Because corrosion repair and treatment can be time consuming, early evaluation is essential for good aircraft maintenance planning. This evaluation will assist in determining if sheet metal or aircraft mechanics will be necessary to make the needed repair. When corrosion exceeds acceptable criteria, material replacement will be necessary. (Refer to TM 55-1500-204-25/1, General Aircraft Maintenance Manual.) For corrosion treatment, refer to TM 43-0105, Corrosion Control for Army Aircraft. For painting, refer to TM 55-1500-345-23, Painting and Marking of Army Aircraft. If corrosion is not covered by the applicable TM, submit a DA Form 2028, Recommended Changes to Equipment Technical Publications, or, where a design change is necessary, an Equipment Improvement Recommendation (EIR).

FOLLOW-ON MAINTENANCE:
As required.

END OF TASK

2-344 CLEANING AND TREATING SALT-CORRODED PARTS 2-344

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Corrosion Removing Compound (E242)
Aluminum Wool (E72)
Naphtha (E245)
Steel Wool (E373)
Corrosion-Preventive Compound (E152) and (E153)
Primer (E291)
Lacquer (E211)
Potassium Dichromate (E286)
Lubricating Oil (E252)
Grease (E190)
Alodine 1200 (E65)
Wash Primer (E302)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

1 Clean and treat salt-corroded parts as soon as possible after immersion. Refer to table, cleaning and treating corroded parts.

2 Only if materials or equipment in table are not available, use limited measures in steps 3 or 4.

3 Apply limited measures for helicopter as follows:

a. Wash helicopter. Use fresh water. Allow helicopter to dry.

b. Prepare mixture of 75 percent lubricating oil (E252) and 25 percent corrosion-preventive compound (E152). Wear gloves (E186).

CAUTION

Do not allow oil mixture to contact lubricated or nonlubricated bearings. Bearings can be damaged.

c. Coat bare metal and moving parts by spraying or rubbing. Use mixture in step b.

4 Apply limited measures for specific parts of helicopter as follows:

a. Remove products of corrosion. Refer to table, cleaning and treating corroded parts.

b. Dry surface. Apply two coats of primer (E291). Allow each coat to dry. On magnesium parts, apply three coats of primer (E291). Wear gloves (E186).

c. Refinish primed areas. Use type and color of finish same as original.

d. If original material is not available, apply liberal coat of corrosion-preventive compound (E153) to refinished area.

e. Liberal coat of grease (E190) may be applied over bare washed area as alternate to step d.

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2-344 CLEANING AND TREATING SALT-CORRODED PARTS (Continued) 2-344

Cleaning and Treating Corroded Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished surfaces only	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Ue stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable
Magnesium	Surface pitting	Large, nonremovable parts — remove corrosion products with a stiff bristle brush.	Apply a type I chrome-pickle solution or Type VI chromic acid solution in accordance with MIL-M-3171, Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable
Steel	Severely rusted	Replace parts	Not applicable
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary.	Apply one coat of primer (E291) on previously cadmium-plated parts. Apply two coats of aluminum pigmented lacquer or finish to match. Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer (E302). Before applying primer (E291), refer to MIL-C-8507.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-345 RESTORE TRANSPARENT PLASTIC FINISH 2-345

INITIAL SETUP

Applicable Configurations:
All

Tools:
Containers, 1 Gallon and 1 Quart

Materials:
Glass Polishing Kit (E281)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

GENERAL INFORMATION

1. Restore transparent finishes. Use glass polish kit RS-69 (E281).

2. **Cleanliness.** Make sure abrasives do not become contaminated. Keep abrasives away from dirt, dust, or other gritty material which could cause scratches. Wipe plastic clean during and after each abrasion operation.

3. **Preservation.** Abrasives can be used often if washed with liquid detergent and water. Wash, dry, and sprinkle with talcum powder. Sprinkle talcum powder on abrasive during use to add life to abrasive.

4. **Heat.** Work slowly to avoid heat buildup and resulting surface distortion. Use abrasives wet or dry. Reduce surface temperatures in hot, humid areas by using abrasives with water or detergent water mixture, if necessary, to cool work surface.

5. **Application.** Hand application of abrasives is recommended for best results. An orbital vibrator, with speeds in the 12,000 rpm range, may be used, however, with a 4 1/4-inch square abrasive pad.

6. **Area.** When changing from coarse to fine abrasive, obtain smooth blend by using finer abrasive, and extending coarse-blended area considerably.

PREPARATION AND RESTORATION PROCEDURE

7. Pour 1 pint of liquid detergent and 7 pints of water into gallon container.

8. Fill 1-quart container. Use liquid in step 7.

9. Clean damaged area. Use wiper soaked with liquid in step 8.

10. Rinse 1-quart container. Use water. Fill container with liquid in step 8.

11. Wrap No. 400 abrasive paper around foam block. Insert cardboard block between sandpaper and foam block to serve as cushion and hold moisture.

12. Roughen damage area. Use liquid in 1-quart container and No. 400 sandpaper.

13. Rinse roughened area. Use liquid in 1-gallon container.

14. Rinse 1-quart container. Use cold water.

15. Repeat steps 11 through 14. Use No. 600 abrasive paper. Roughen 3 minutes for each 1 square-foot.

16. Wrap No. 2400A abrasive paper around foam block. Do not insert cardboard block. Roughen 2 minutes for each 1 square-foot. Alternate vertical and horizontal strokes every 20 seconds.

17. Repeat step 16. Use each succeeding finer abrasive paper in order, No. 3200A, 3600A, 4000A, 6000A, and 8000A. Use slight pressure on No. 8000A and shorter roughing time.

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2-345 RESTORE TRANSPARENT PLASTIC FINISH (Continued) 2-345

18. Apply thin coat of antistatic cream. Use fingertips in circular motion. Buff area until dry. Use wiper cloth.
19. Check restored area for distortion. Sight object, such as crossed bars of window, about 30 feet away. If object does not appear distorted, go to FOLLOW-ON MAINTENANCE.
20. If object appears distorted, repeat steps as required until object does not appear distorted.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-346 FINISH ALUMINUM ALLOY PARTS — INORGANIC SURFACE TREATMENT 2-346

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Chemical Film (E113)
Corrosion Preventive Compound (E153)
Gloves (E186)
Type III Clean Compound (E242)
Aluminum Wool (E72)
Naphtha (E245)
Alodine 1200 (E65)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
MIL-C-5541
MIL-A-8625
MIL-S-5002

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Treat aluminum alloy surfaces of repair or replacement parts prior to assembly. Cutting, forming or drilling must be done before treatment. For treatment of aluminum alloy surfaces or parts, refer to cleaning and treatment of aluminum parts table.
2. Apply one of following treatments to exterior parts made of, or clad with, 1100, 3003, 5052, 6053, 6061, or 7072 aluminum alloys.
   - a. Alodizing MIL-C-5541.
   - b. Sulfuric acid anodizing MIL-A-8625, type II.
   - c. Chromic acid anodizing MIL-A-8625, type II.
3. Chromidize interior parts made of, or clad with, 1100, 3003, 5052, 6053, 6061, or 7072 aluminum alloys to receive organic finish (MIL-S-5002).
4. If immersion equipment is not available, or if touch-up only is required, treat parts with either of following coatings:

WARNING

Chemical film (E113) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   - a. Apply chemical film (E113).

WARNING

Corrosion preventive compound (E153) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   - b. Apply corrosion preventive compound (E153). Wear gloves (E186).

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2-346 FINISH ALUMINUM ALLOY PARTS — INORGANIC SURFACE TREATMENT (Continued) 2-346

Cleaning and Treating Aluminum Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Use stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable

FOLLOW-ON MAINTENANCE

As Required

END OF TASK

2-347 FINISH MAGNESIUM ALLOY PARTS — INORGANIC SURFACE TREATMENT 2-347

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Chrome Pickling Solution (E114)

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Magnesium alloys corrode faster than any other metal on helicopter when in contact with moisture. Treat all repairs or replacement parts before assembly. Do all cutting, forming, or drilling before treatment.

2. Clean and treat magnesium alloy parts. Refer to Cleaning and Treating Corroded Parts table.

WARNING

Chrome pickling solution (E114) is extremely toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

Cleaning and Treating Corroded Magnesium Parts

METAL	FORM	CLEANING	TREATMENT
Magnesium	Surface pitting	Large, nonremovable parts — remove corrosion products with a stiff bristle brush	Apply a Type I chrome-pickle solution (E114) or Type VI chromic acid solution in accordance with MIL-M-3171, Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure	Not applicable

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2-347 FINISH MAGNESIUM ALLOY PARTS — INORGANIC SURFACE TREATMENT (Continued) 2-347

Cleaning and Treating Corroded Parts

METAL	FORM	CLEANING	TREATMENT
Aluminum unfinished surfaces only	Mild surface pitting, straining, and superficial etching	Apply Type III cleaning compound (E242). Use stiff fiber bristle brush. Rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Heavy surface pitting	Hand rub with aluminum wool (E72) and naphtha (E245). Apply Type III cleaning compound (E242) and rinse with fresh water.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum Alclad unfinished surfaces	Mild or heavy surface pitting, straining, and superficial etching	Apply cleaning compound (E242) and rinse with fresh water. Do not use abrasives.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Intergranular corrosion	Remove corroded areas with routing tools. Burnish parts to remove all sharp edges.	Apply alodine 1200 (E65). Refer to MIL-C-5541.
Aluminum	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Magnesium	Surface pitting	Large, nonremovable parts — remove corrosion products with a stiff bristle brush.	Apply a type I chrome-pickle solution or Type VI chromic acid solution in accordance with MIL-M-3171 Type III for 1 to 3 minutes and wash with fresh water.
Magnesium	Stress corrosion (Cracking)	Repair or replace parts in accordance with applicable repair figure.	Not applicable.
Steel	Severely rusted	Replace parts.	Not applicable.
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary.	Apply one coat of primer (E291) on previously cadmium-plated parts. Apply two coats of aluminum pigmented lacquer or finish to match. Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer (E302). Before applying primer (E291), refer to MIL-C-8507.

FOLLOW-ON MAINTENANCE
As required.

END OF TASK

2-347.1 FINISH STEEL PARTS - INORGANIC SURFACE TREATMENT 2-347.1

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Wash Primer (E302)
Zinc Chromate Primer (E291)

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. Discard severely rusted steel parts.
2. Clean and treat lightly rusted steel parts with no deep pitting. Refer to Cleaning and Treating Corroded Steel Parts table.

WARNING

Wash primer (E302) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. Incase of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

Cleaning and Treating Corroded Steel Parts

METAL	FORM	CLEANING	TREATMENT
Steel	Severely rusted	Replace parts	Not applicable
Steel	Lightly rusted parts (No deep pitting)	Use steel wool (E373) to remove rust and clean as necessary	Apply one coat of primer (E291) on previously cadmium-plated parts. Apply two coats of aluminum pigmented lacquer or finish to match Cadmium-plate removable parts in accordance with QQ-P-416. Brush cadmium plate local bare areas. Refer to MIL-STD-865. If post-chromate treatment is not applied to cadmium plate, apply one coat of wash primer (E302). Before applying prime (E291), refer to MIL-C-8507.

FOLLOW-ON MAINTENANCE:
As Required

END OF TASK

2-348 FINISH CARBON AND LOW ALLOY STEELS — INORGANIC SURFACE TREATMENT 2-348

INITIAL SETUP

Applicable Configurations:

All

Tools:

As Required

Materials:

Prepaint Phosphate Treatment TT-C-490

Metal Conditioner, Type II (E242)

Personnel Required:

Aircraft Structural Repairer

Inspector

References:

MIL-M-10571

Equipment Condition:

As Required

General Safety Instructions:

As Required

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1. Treat unplated carbon and low-alloy steel repair or replacement parts surfaces. Apply prepaint phosphate treatment TT-C-490, type 1. Do all cutting, forming, and drilling before treatment.
2. If immersion equipment is not available, use brush phosphate coating (E242). Refer to MIL-M-10578. Do all cutting, forming, and drilling before treatment.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-349 FINISH CORROSION AND HEAT-RESISTANT STEELS — INORGANIC SURFACE TREATMENT 2-349

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
MIL-S-5002

Equipment Condition:
As Required

General Safety Instructions:
As Required

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1. These metals do not require surface treatment except as follows
   a. Descale parts that are fusion welded or scaled. Use mechanical or chemical passivation inorganic contamination removal technique (MIL-S-5002)
   b. Apply hot or cold passification to parts that are machined, formed on non-ferrous dies, barrel-deburred, cleaned by vapor-or-grit-blasting or polished (MIL-S-5002).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-350 FINISH INTERIOR STRUCTURES DETAIL OR REPAIR PARTS — NONMATING SURFACES AND SIMILAR METAL CONTACT 2-350

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Zinc Chromate Primer (E291)
Wash Primer (E301)
Vinyl Primer (E290)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Zinc chromate primer (E291) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Wash primer (E301) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Apply primer before installation of interior repair or replacement parts not contacting dissimilar metal surfaces. Wear gloves (E186).
2. Apply one coat of primer (E291) to aluminum alloy parts.
3. Apply two additional coats of primer (E291) to following areas:
   a. Entire cockpit fuselage section under cockpit floor, from forward canted bulkhead to sta 160. Include bottom of floors.
   b. Entire cabin fuselage section under floor from sta 160 to 440. Exclude bottom of floor.
   c. Entire aft fuselage section under floor, from sta 440 to 482, except where final finish is required. Exclude bottom of floor and all internal areas from wl 0 downward, between sta 502.4 and 554.
   d. Entire cargo loading ramp under floor, except bottom of floor.
   e. Entire pod installation, from wl 0 downward, including wheel wells, except areas to be finished same as external areas.
4. Apply three coats of primer (E291) to magnesium alloy parts, except extruded ZK60 parts, unless final finish coating will be applied. Apply coat of wash primer (E301) to magnesium alloy forgings before applying primer (E291).

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2-350 FINISH INTERIOR STRUCTURES DETAIL OR REPAIR PARTS — NONMATING SURFACES AND SIMILAR METAL CONTACT (Continued) 2-350

WARNING

Vinyl primer (E290) is toxic. It can irritate skin and cause burns. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

5 Apply one coat of wash primer (E301), and heavy coat of vinyl primer (E290), to extruded ZK60 magnesium alloy parts

6 Apply one coat of wash primer (E301), and one coat of zinc chromate primer (E291), to cadmium-plated and unplated carbon and low alloy steel parts

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-351 INTERIOR STRUCTURES DETAIL AND REPAIR PARTS — MATING SURFACES DISSIMILAR METAL CONTACT 2-351

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Primer (E291) and (E293)
Vinyl Tape (E385)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-347

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Primers (E291) and (E293) are flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Check that all corrosion has been removed, and parts are properly insulated from each other.
2. If corrosion exists, remove corrosive products and finishes at external lap joints (Task 2-347).
3. When one mating surface is magnesium alloy, finish as follows:
   a. Apply two coats of primer (E293) to each mating surface. Wear gloves (E186).
   b. Apply vinyl tape (E385) between mating surfaces. Tape must extend at least 1/4-inch past edge.
   c. If tape cannot be used, assemble parts with wet primer (E293) and apply primer fillet at joint boundary.
4. If one mating surface is steel alloy, apply two coats of primer (E291) to each surface. Wear gloves (E186).
5. Apply one extra coat of primer (E293) on exterior edges of magnesium mating surfaces. Apply one extra coat of primer (E291) on exterior edges of steel alloy mating surfaces. Wear gloves (E186).
6. Install all rivets, nuts, bolts, and washers wet with primer (E291).
7. Apply one extra coat of primer (E291) to heads of aluminum alloy rivets driven through steel. Wear gloves (E186).

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE 2-352

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Lacquer (E215)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-345-23

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Apply final finish to primed repair or replacement interior parts. Apply finish to match adjacent parts as follows:
   a. Finish all parts of cockpit fuselage section that will reflect in windshields, including switch panels. Use low reflective black lacquer (E215).
   b. Finish all other parts which will be exposed after assembly, including floors, walls, seats, console, pedestal, foot controls, and instrument panels. Refer to Internal Markings figures.
   c. Apply internal markings. Refer to Internal Markings figure.
2. Apply final finishes and markings to exterior parts (TM 55-1500-345-23).

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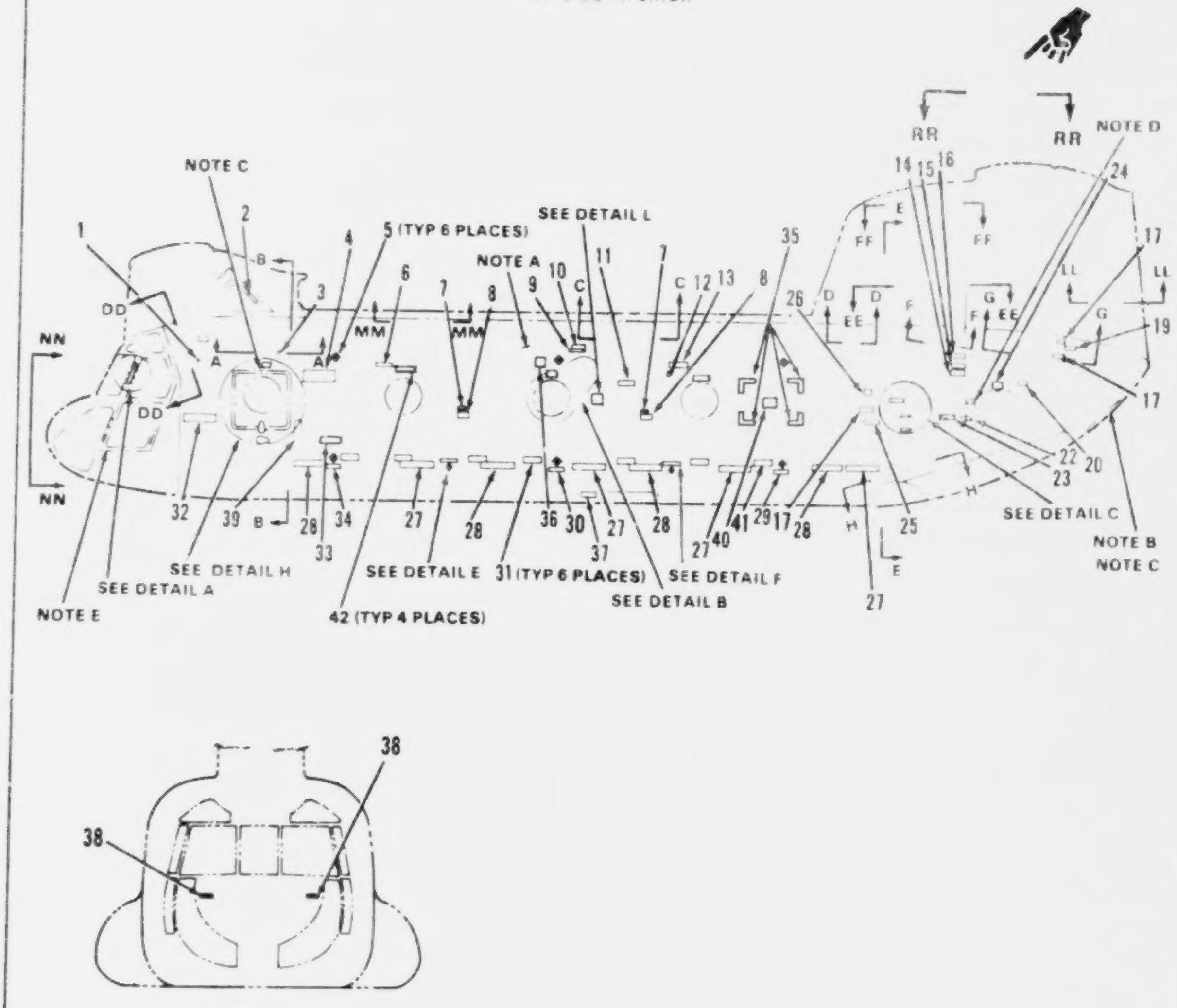
RH SIDE INTERIOR


NOTE C
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SEE DETAIL C
NOTE B
NOTE C
SEE DETAIL H
SEE DETAIL A
NOTE E
SEE DETAIL E
31 (TYP 6 PLACES)
SEE DETAIL F
SEE DETAIL B
42 (TYP 4 PLACES)
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38

VIEW NN

NOTE
SEE FOLLOWING SHEETS FOR DETAILS.

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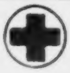
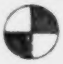
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1		3 0 DIA	11136 17875	⊕ STA 106 5 WL 32 5
2	NO 1 FLT SYS RSVR	0 5	17875	STA 150 WL 61 38 BOTH SIDES OF SUPPORT
3	LEVELING BRACKET	0 5	17875	▭ STA 145 2 WL 39 0
4	MAX CONCENTRATED FLOOR LOADING FWD OF STA 160 0 NOT TO EXCEED 1000 LB	1 0	17875	▭ STA 163 5 WL 27 6
5		3 0DIA	17038 13538	⊕ STA 181 0 303 0 425 0 WL 35 0 BOTH SIDES
6	N1 CONT ENG 2	0 5	17875	▭ STA 206 WL 40
7	UT RECP	1 0	17875	▭ STA 249 0 WL 8 0 STA 348 0 WL 8 0
8	28 VDC AMPS 1 = 15A 2 = 7 5A 3 = 5A	0 5	17875	▭ STA 249 0 WL 6 0 STA 348 0 WL 6 0
9	115V 1PH 15AMP 115V 3 HP 15 AMP	0 5	17875	▭ STA 317 WL 40 1
10	400 CYCLE AC UTILITY RECEPTACLE	0 5	17875	▭ STA 317 WL 41 9
11	HOIST OPER STATION	1 0	17875	▭ STA 335 0 WL 23 9
12	⇨	0 8 x 3 5	17875 BACKGROUND	STA 363 3 WL 39 6
13	HOIST OPER ATTACH	1 0	17875	▭ STA 363 3 WL 37 1
14	CAUTION DO NOT HAND PUMP SYSTEM ABOVE BOTTOMING PRESSURES	0 5 0 25 0 25	17875	▭ STA 538 WL 34 5
15	AT TEMPS BELOW MINUS 25° F PRECHARGE ACCUMULATOR TO 2050 PSI WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT 3350 PSI	0 25	17875	▭ STA 538 WL 38
16	↑ AT TEMPS ABOVE MINUS 25° F PRECHARGE ACCUMULATOR TO 1800 PSI WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT 3000 PSI	0 25	17875	▭ STA 538 WL 41 5

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Coninued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
17	ACC CHARGE 1400 PSI AIR OR NITROGEN	0.44	17875	STA 528.5, WL 41.8 STA 581.0, WL 49.5 STA 483.5, WL 13.0
18	(DELETED)			
19	APU START MDL	0.5	17875	STA 585, WL 44.0
20	NORMAL OPEN	0.5	17875	STA 560, WL 30.5
21	(DELETED)			
22	HYD SYS FILL MIL H 83282 SELECTOR 1 = FC SYS NO 1 2 = FC SYS NO 2 3 = UTILITY SYS	0.5 0.5 0.5 0.25 0.25 0.25	17875	STA 523, WL 7.5
23	HYDR SYS FILL NO 1 FLT SYS NO 2 FLT SYS OFF 3 UTILITY 2 1	0.375	17875	STA 517, WL 7.5
24	EMERG UTIL PRESS NORMAL OPEN	0.5	17875	STA 515.5, WL 14.5
25	RAMP CONTROL	0.5	17038	STA 491.0, WL 0.0
25.1	UP STOP DN	0.5	17038	STA 491.0 ON 114S3609-5
26	POWER STEERING MODULE	0.5	17875	STA 486.5, WL 25
27	10000 LB TIE DOWN HERE ONLY ⇩	1.0	17875	STA 222.0, WL -21.5 STA 311.0, WL -22.5 STA 391.0, WL -22.5 STA 460.2, WL -21.5
28	ALL TIE DOWN RINGS 5000 LBS UNLESS NOTED	1.0	17875	STA 441.3, WL 21.5 STA 360.0, WL -22.5 STA 280.0, WL -22.5 STA 160.0, WL -22.5
29	CARGO E STA 425 CAP 22875 LBS	1.0 0.5 0.5	17875	STA 428.8, WL -24.5
30	CARGO D STA 303 CAP 22875 LBS	1.0 0.5 0.5	17875	STA 306.8, WL -24.5

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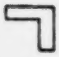
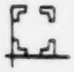
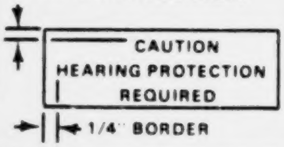
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
31	HEAT AND VENT LOOSEN SCREW TO ADJUST SLIDE OPEN ←→ CLOSED	1 0 0 5 0 5 0 5	17875	STA 184.0, WL -18.5 STA 215.0, WL -18.5 STA 255.0, WL -18.5 STA 285.0, WL -18.5 STA 285.0, WL -18.5 STA 335.0, WL -18.5 STA 410.0, WL -18.5
32	TO STOW SEAT-FOLD BACK FWD & SECURE WITH STRAP FOLD SEAT DOWN	1 0	17875	ON RH BEAM BL 18 0
33	DO NOT COVER AIR INLET	1 0	17875	STA 184 7, WL -6 3
34	CARGO C STA 181 CAP 22875 LBS	1 0 0 5 0 5	17875	STA 184 8, WL -24 5
35		3 0x3 0	13538	 STA 404 1, WL -9 5
36	ANTENNA-VOR AN ARN-82	0 5	17875	STA 337 1, WL -18 6
37	(DELETED)			
38	AS-2892( )/APR-39 ANT	0 5	37875	WL 1 5, LBL 28 0 WL 1 5 RBL 28 0
39	XM24 GUN MTG (ON R AND L SIDES)	0 5	17875 ON 35231	STA 160 0 WL 0
40	CUT HERE FOR EMERGENCY EXIT	1 0	33538 37-38	APPLY ON TOP OF "EMERGENCY RESCUE" AT STA 420 0
41	EXTENDED RANGE FUEL TANK DISCONNECT	0 38	17875	STA 380 75 WL -14 00
42	 CAUTION HEARING PROTECTION REQUIRED 1/4" BORDER	1 0 0 5 0 5	17038 ON 13538	OVER EACH WINDOW AT STA 220, 300, 380, 420, ON WL 32 0

NOTES

A MARKINGS COVERED BY BLANKET INSTALLATIONS ARE TO BE REPEATED ON THE BLANKET OUTER SURFACE

B EMERGENCY EXIT MARKINGS ARE TO BE ORANGE-YELLOW, COLOR NO 13538 OR 33538, AS REQUIRED, ON A BLACK BACKGROUND, COLOR NO 37038 OR 17038, AS REQUIRED

C ESCAPE PANELS REQUIRE THE COMPLETE PERIPHERY TO BE MARKED BY A 1 0 TO 2 0 WIDE BAND, HALF ON STRUCTURE AND HALF ON PANEL

D FINISH HALF OR FILLER CAP, LIGHT YELLOW COLOR NO 13655 THE OTHER HALF, LIGHT BLUE, COLOR NO 15102

E COCKPIT AREA-GLARE SHIELD, SWITCH PANELS, FLOOR, WALLS, SEATS, FOOT PEDALS, METAL PORTION OF CONTROL STICK, THRUST LEVER, AND WINDOW FRAMES TO BE PRIMED WITH EPOXY PRIMER MIL-P-23377 PER MIL-P-22751 AND COATED WITH LOW REFLECTIVE BLACK LACQUER MIL-L-46159A (MR) MODIFIED

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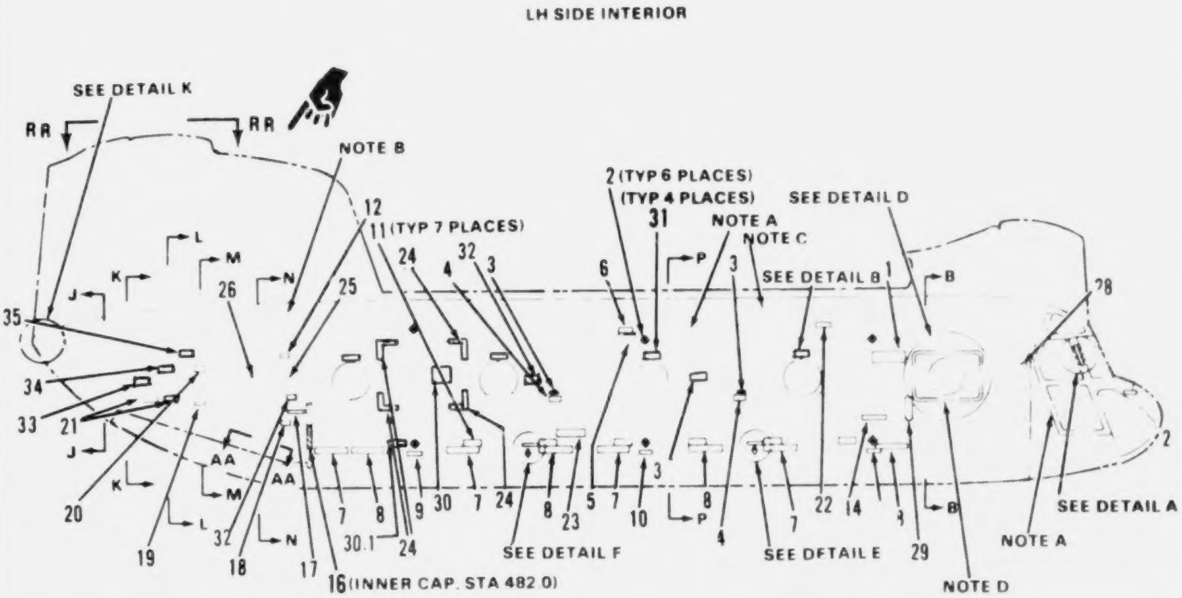
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


LH SIDE INTERIOR
SEE DETAIL K
RR
RR
NOTE B
12
11 (TYP 7 PLACES)
2 (TYP 6 PLACES)
(TYP 4 PLACES)
31
NOTE A
NOTE C
SEE DETAIL D
SEE DETAIL B
1
B
28
L
M
K
J
N
26
25
35
24
32
4
3
6
P
3
34
33
21
J
AA
AA
K
M
L
N
20
19
32
18
17
16 (INNER CAP. STA 482.0)
7
8
9
30.1
24
30
7
24
8
23
5
7
10
3
P
8
4
7
22
14
3
B
29
SEE DETAIL F
SEE DETAIL E
NOTE D
NOTE A
SEE DETAIL A
2

NOTE
SEE FOLLOWING SHEETS FOR DETAILS

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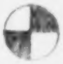
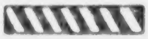
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	MAX CONCENTRATED FLOOR LOADING FWD OF STA 180 0 NOT TO EXCEED 1000 LB	1 0	17875	STA 181 0 WL 21 0
2		3 0 DIA	17038 13538	STA 425 0. WL 42 5 STA 303 0. WL 35 0 STA 181 0. WL 35 0 STA 425 0. WL 21 5 STA 303 0. WL 21 5 STA 181 0. WL 21 5
3	UT RECP	1 0	17875	STA 348 0. WL 8 0 STA 249 0. WL 8 0
4	28 VDC AMPS 1= 15A 2= 7 5A 3= 5A	0 5	17875	STA 348 0. WL 8 0 STA 249 0. WL 8 0
5	115V 1PH 15 AMP 115V 3 HP 15 AMP	0 5	17875	STA 317. WL 40 1
6	400 CYCLE AC UTILITY RECEPTACLE	0 5	17875	STA 317 WL 41 9
7	10000 LB TIE DOWN HERE ONLY ⇩	0 5	17875	STA 400 2. WL 21 5 STA 391 0. WL 22 5 STA 221 0. WL 22 5 STA 329 0. WL 22 5
8	ALL TIE DOWN RINGS 5000 LBS UNLESS NOTED	1 0	17875	STA 460 2. WL 21 5 STA 380 0. WL 22 5 STA 280 0. WL 22 5 STA 181 3 WL 21 5
9	CARGO E STA 425 CAP 22875 LBS	1 0 0 5 0 5	17875	STA 428 8 WL 24 5
10	CARGO D STA 303 CAP 22875 LBS	1 0 0 5 0 5	17875	STA 308 8. WL 24 5
11	HEAT AND VENT LOOSEN SCREW TO ADJUST SLIDE OPEN ←→ CLOSED	1 0 0 5 0 5 0 5	17875	{STA 200 0 WL 18 5 STA 380 0 WL 18 5 {STA 240 0 WL 18 5 STA 400 0 WL 18 5 {STA 280 0 WL 13 5 STA 440 0 WL 18 5 STA 320 0 WL 18 5
12	APU CONTROL BOX	0 38	17875	STA 522 5 WL 35 5
13	(DELETED)			
14	DO NOT COVER AIR INLET	1 0	17875	STA 184 7. WL 6 3
15	CARGO C STA 181 CAP 22875 LBS	1 0 0 5 0 5	17875	STA 184 8 WL 24 5
16		2 0x13 0	11136 17875	STA 482 0. WL 9 0 ON INNER CAP OF FRAME
17	STA 486 0	1 0	17875	STA 484 0 WL 2 0
18	FIRE EXT	1 0	17875	STA 492 0. WL 8 5

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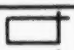
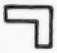
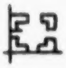
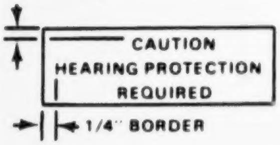
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
19	COMPASS FLUX VALVE	0.5	17875	 STA 537.0, WL 3.5
20	EMERGENCY APU FLUID SHUTOFF VALVE ↖ CLOSE ↘ OPEN	0.5 0.5 0.25	17875	STA 537.0, WL 22.2
21	INTERPHONE WALKING CORD → STOWAGE	0.5	17875	STA 553.5, WL 8.0 STA 542.9 WL 6.0
22	N1 CONT ENG 1	0.5	17875	STA 208, WL 40
23	CRANK STOWAGE-RESCUE HATCH & RAMP MECH	1.0	17875	STA 334.0, WL 12
24		3.0 x 3.0	13538	 STA 436.1, WL 6.0
25	FUEL VALVE NO. 1 ENGINE ← CLOSE OPEN →	0.5 0.25	17875	STA 492.0, WL 19.50
26	FUEL VALVE CROSSFEED ← CLOSE OPEN →	0.5 0.25	17875	STA 508.0, WL 16.0
27	(DELETED)			
28	WARNING INSTALL BACK-UP PANEL BEFORE FLIGHT	0.5	17875 ON 31136	STA 95.0 WL 21.2
29	XM24 GUN MTG (ON R AND L SIDES)	0.5	17875 ON 36231	STA 1600, WL 0
30	CUT HERE FOR EMERGENCY EXIT	1.0	33538 ON 37038	APPLY ON TOP OF "EMERGENCY RESCUE" AT STA 420.0
30.1	EXTEND RANGE FUEL TANK DISCONNECT (WITH 19)	0.38	17875	STA 380.75 WL 12.00
31		1.0 0.5 0.5	17038 ON 13538	OVER EACH WINDOW AT STA 220, 300, 380, 420, ON WL 32.0

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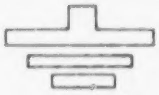
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
32	 (WITH 19)		17875	STA 278 0 WL 13 5 STA 358 0 WL 13 5 STA 482 0 WL 10 0
33	STOWAGE RAMP SUPT STRUT (WITH 19)	0 50	17875	STA 553 5 WL 15 0
34	STOWAGE FLIPPER SUPT STRUT 2 PLCS (WITH 19)	0 50	17875	STA 521 5 WL 21 5
35	STOWAGE FOR FLARE DISPENSER COVER WITH [illegible]	0 50	17875	STA 553 WL 35 0

NOTES

A CABIN AREA DARK GULL GRAY FED STD 595 NO 36231 EXCEPT SURFACES ABOVE WATERLINE +29 0 TO BE APPLICABLE PRIMER COLOR ONLY SURFACES REQUIRING APPLICATION OF VELCRO TAPE SHOULD BE PROPERLY MASKED PRIOR TO APPLICATION OF FINAL FINISHES

B RESTORE OBLITERATED LINE MARKINGS IN ACCORDANCE WITH AND10375 AS REQUIRED

C MARKINGS COVERED BY BLANKET INSTALLATIONS ARE TO BE REPEATED ON THE BLANKET OUTER SURFACE

D ESCAPE PANELS REQUIRE THE COMPLETE PERIPHERY TO BE MARKED BY A 1 0 TO 2 0 WIDE BAND HALF ON STRUCTURE AND HALF ON PANEL

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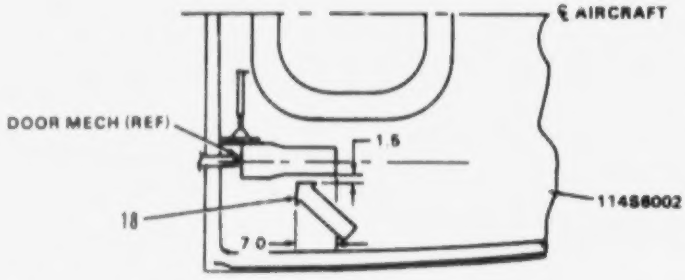
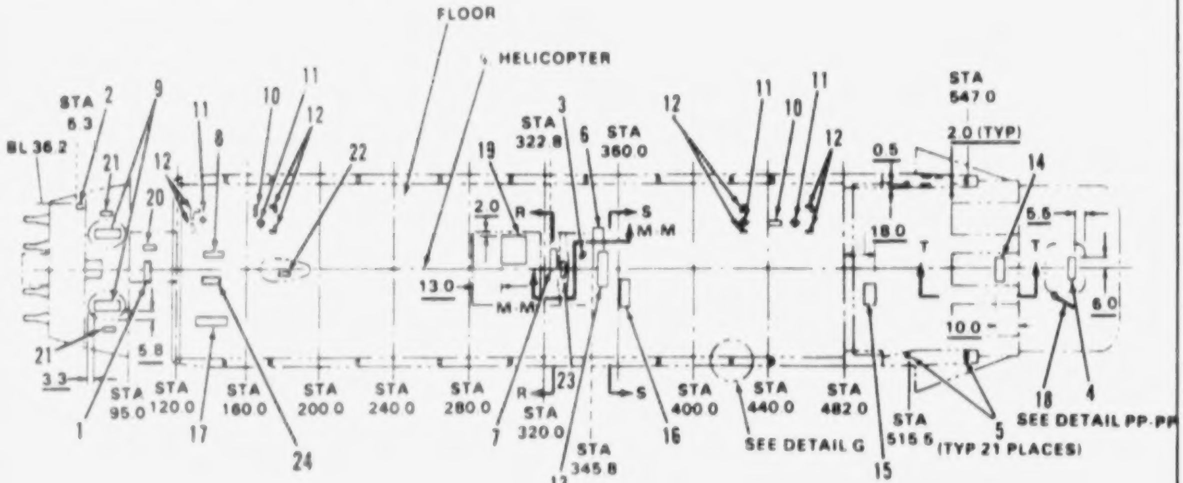
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


℄ AIRCRAFT
DOOR MECH (REF)
1.5
114S6002 (REF)
18
7.0

DETAIL PP-PP

COCKPIT AND CABIN
(LOOKING DOWN)


FLOOR
℄ HELICOPTER
STA 5.3
BL 36.2
2
9
11
10
11
12
22
21
12
20
8
11
19
2.0
R
STA 322.8
3
6
STA 360.0
S
M-M
13.0
M-M
12
11
11
10
12
STA 547.0
2.0 (TYP)
0.5
18.0
T
14
5.5
T
6.0
10.0
21
3.3
5.8
STA 95.0
STA 120.0
STA 160.0
STA 200.0
STA 240.0
STA 280.0
R
STA 320.0
23
S
STA 400.0
STA 440.0
STA 482.0
STA 515.5
1
17
24
7
STA 345.8
13
16
SEE DETAIL G
15
5 (TYP 21 PLACES)
18
4
SEE DETAIL PP-PP

NOTE
SEE FOLLOWING SHEETS FOR DETAILS

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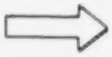
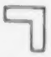
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	ANTENNA VOR AN/ARN 82	0.5	17875	STA 330.5, WL 16.6
2	FIRE EXT	1.0	17875	STA 65.3, RBL 36.2
3		0.8x3.5	17038 BACKGROUND	STA 340.0, RBL 6.0
4	EMERGENCY EXIT PULL STRAP OUT PUSH PANEL	1.0 0.5	33538	5.5 INCH FROM AFT EDGE OF DOOR ON RBL 6.0
5	WL 0	1.0	17875	(SEE DETAIL G)
6	TURN LATCH TO UNLOCK & LOCK OUTER HATCH CAUTION UNLOCK BEFORE TURNING CRANK TO OPEN HATCH	1.0	13538	ON LOWER DOOR STA 345.0, BL 0.0
7	UNLOCK	1.0	17875	ON LOWER DOOR STA 322.8, BL 0.0
8	NO 1 SYS PTU	0.5	17875	STA 136, RBL 20
9	ACCESS PANELS HYDRAULIC LINES, TRANSFORMERS	1.0	17875	STA 165.0, RBL 35.00
10	LOCATION FOR MAINT CRANE BASE PLATE	0.5	13538	STA 440.0, BL 26.0
11		1.0 DIA	13538	STA 138.5, RBL 26.0 STA 427.0, RBL 26.0 STA 455.0, RBL 26.0 STA 166.5, RBL 26.0
12		3.0 x 3.0	13538	STA 133.86, RBL 19.9 STA 424.3, RBL 19.9
13	ALTERNATE GROUND EMERGENCY ESCAPE LIFT	1.0	13538	UPPER DOOR STA 348.0, BL 0.0
14	MAX WEIGHT 200 LBS ON WORK PLATFORM	1.0	17875	BL 0.0 10.0 INCH FROM EDGE
15	LIFT PLUG FOR MANUAL CARGO DOOR CRANKING	0.5	17875	STA 500.0, LBL 5.0
16	OPEN CRANK HERE TO OPEN AND CLOSE OUTER HATCH	1.0	13538	STA 361.5, LBL 5.0
17	RESCUE PULLEY ATTACH ⬇	1.0	17875	STA 132.5, LBL 24.5

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
18	EMERGENCY EXIT PULL HANDLE UP & OVER PUSH OUT	1.0	17038	(SEE DETAIL PP-PP)
19	LOADING CONFIGURATION — MAX PAYLOAD FWD HOOK ONLY — 17000 LB CENTER HOOK ONLY — 26000 LB AFT HOOK ONLY — 17000 LB TANDEM POINT LOAD — 25000 LB TOTAL ALL LOADING TO BE WITHIN GROSS WT CG ENVELOPE SEE OPERATORS INSTRUCTIONS FWD AND AFT HOOK MANUAL RELEASE OPERATION: ● POSITION LEVER VERTICALLY FOR OPERATING MODE ● PULL LEVER AFT TO RELEASE ● PUSH LEVER FWD TO STOW	0.38	17875	SEE "COCKPIT AND CABIN (LOOKING DOWN)" DIAGRAM
20	AS-2890( )/APR-39 ANT	0.5	37038	STA 103.5, RBL 10
21	AS-2595 APN-194 (V) ANT	0.5	17875	STA 47.87, RBL 18.5 STA 47.87, LBL 18.5
22	AS-2108A/ARN-89 ANT	0.5	37875	STA 186.78, LBL 4.0
23	EMERGENCY RELEASE CENTER HOOK ↓	0.38	17875	BL 0.0
24	ACCUMULATOR CHARGE 700 PSI-AIR OR NITROGEN	0.5	17875	STA 136.0, RBL 20.0

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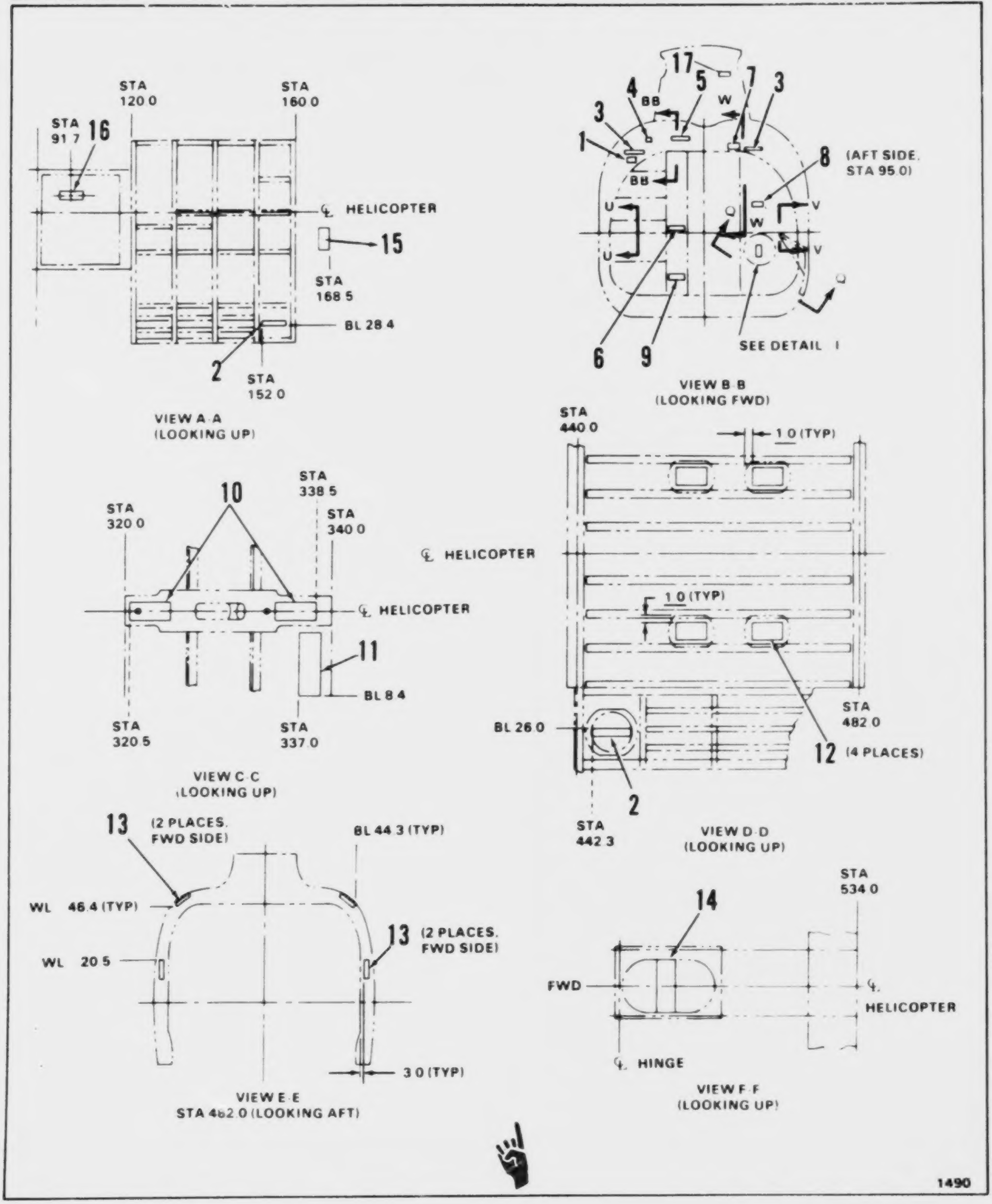
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


STA 91 7
16
STA 120 0
STA 160 0
℄ HELICOPTER
15
STA 168 5
BL 28 4
2
STA 152 0
VIEW A-A
(LOOKING UP)
17
4
BB
5
7
W
3
3
1
8 (AFT SIDE, STA 95 0)
BB
U
U
W
V
V
6
9
SEE DETAIL I
VIEW B-B
(LOOKING FWD)
10
STA 320 0
STA 338 5
STA 340 0
℄ HELICOPTER
11
BL 8 4
STA 320 5
STA 337 0
VIEW C-C
(LOOKING UP)
STA 440 0
1 0 (TYP)
℄ HELICOPTER
1 0 (TYP)
STA 482 0
BL 26 0
12 (4 PLACES)
2
STA 442 3
VIEW D-D
(LOOKING UP)
13 (2 PLACES, FWD SIDE)
BL 44 3 (TYP)
WL 46 4 (TYP)
WL 20 5
13 (2 PLACES, FWD SIDE)
3 0 (TYP)
VIEW E-E
STA 462 0 (LOOKING AFT)
STA 534 0
14
FWD
℄ HELICOPTER
℄ HINGE
VIEW F-F
(LOOKING UP)
1490

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	FIRE EXT	1 0	17875	LBL 37 0 WL 38 7 STA 152 0 LBL 28 4
2	CRANE ACCESS	0 5	17875	STA 442 3 LBL 26 0
3	STA 120 0	1 0	17875	LBL 38 0 WL 40 5 BL 28 5 WL 43
4	TROOP WARNING SYSTEM	0 25	17875	LBL 25 3 WL 48
5	RESCUE PULLEY ATTACH	0 5	17875	LBL 15 5 WL 48
6	LITTER POLE STOWAGE	1 0	17875	LBL 17 2 WL 3 9
7	ANCHOR LINE ATTACH	0 5	17875	RBL 12 0 WL 45
8	CABIN LIGHT RELAYS RED WHITE	0 25	17875	RBL 29 0 WL 15 5
9	WINCH CABLE STOWAGE	1 0	17875	LBL 17 2 WL 20
10	RESCUE CABLE CUTTER PULLEY ATTACH	0 25	17875	STA 338 5 BL 0 0 STA 320 5 BL 0 0
11	CABLE CUTTER PLUG	0 5	17875	STA 337 0 LBL 8 4
12	ACCESS MIX BOX MOUNTING BOLTS	0 5	17875	CENTERED ON 114S3508 FORWARD SIDE
13	STA 482	1 0	17875	WL 20 5 3 INCH OUT BD OF CAP (BOTH SIDES) WL 46 4 RBL 44 3 WL 46 4 LBL 44 3
14	ACCESS SYNCH SHAFT THOMAS CPLG	0 5	17875	CENTER OF DOOR (SEE VIEW F F)
15	GUNNER INPH BOX	0 5	17875	STA 168 5 RBL 3 5
16	DEBRIS SCAN CHIP DET	0 5	17875	STA 91 7 LBL 3 9
17	NO 1 FLT SYS MDL	0 5	17875	WL 79 RBL 8 5

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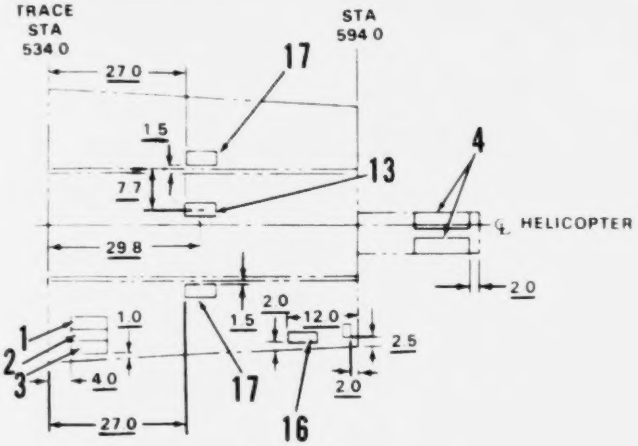
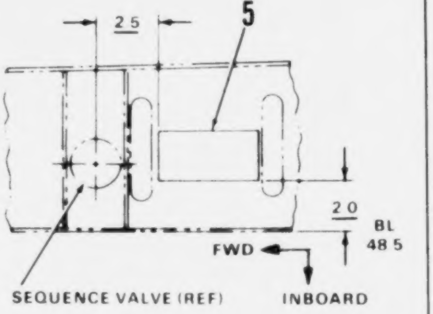
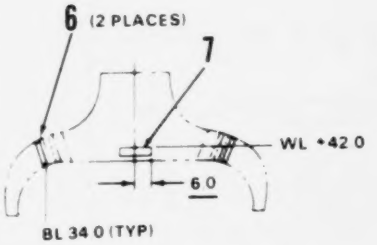
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


TRACE STA 534 0
STA 594 0
27 0
17
1 5
13
7 7
4
℄ HELICOPTER
29 8
2 0
1 5
2 0
12 0
1 0
2 5
1
2
3
4 0
17
2 0
16
27 0

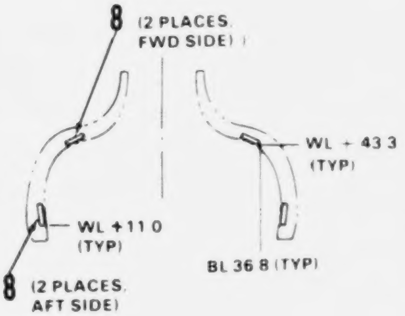
VIEW G-G
(LOOKING UP)


2 5
5
2 0
BL 48 5
FWD
SEQUENCE VALVE (REF)
INBOARD

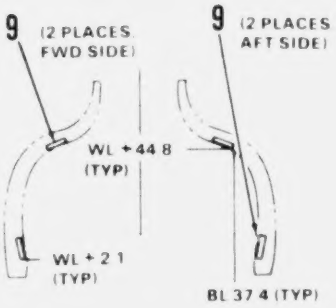
VIEW H-H


6 (2 PLACES)
7
WL +42 0
6 0
BL 34 0 (TYP)

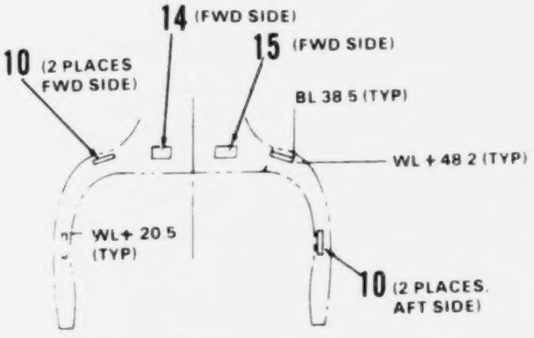
VIEW J-J
STA 594 0 (LOOKING AFT)


8 (2 PLACES, FWD SIDE)
WL + 43 3 (TYP)
WL +11 0 (TYP)
BL 36 8 (TYP)
8 (2 PLACES, AFT SIDE)

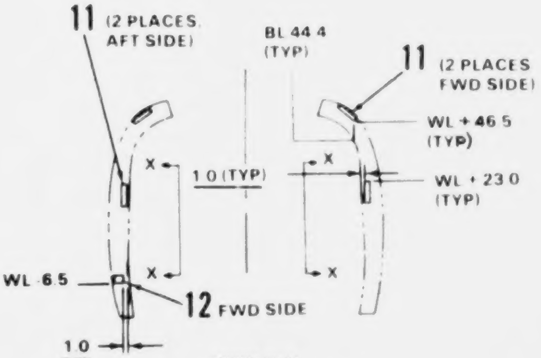
VIEW K-K
STA 575 0 (LOOKING FWD)


9 (2 PLACES FWD SIDE)
9 (2 PLACES AFT SIDE)
WL +44 8 (TYP)
WL + 2 1 (TYP)
BL 37 4 (TYP)

VIEW L-L
STA 555 0 (LOOKING FWD)


14 (FWD SIDE)
15 (FWD SIDE)
10 (2 PLACES FWD SIDE)
BL 38 5 (TYP)
WL + 48 2 (TYP)
WL+ 20 5 (TYP)
10 (2 PLACES, AFT SIDE)

VIEW M-M (LOOKING FWD)
STA 534.0


11 (2 PLACES, AFT SIDE)
BL 44 4 (TYP)
11 (2 PLACES FWD SIDE)
WL + 46 5 (TYP)
X
1 0 (TYP)
X
WL + 23 0 (TYP)
X
X
WL -6 5
12 FWD SIDE
1 0

VIEW N-N
STA 502 4 (LOOKING FWD)

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	CAUTION DO NOT HAND PUMP SYSTEM ABOVE BOTTOMING PRESSURES	0.5 0.25 0.25	17875	SEE VIEW G-G
2	AT TEMPS BELOW MINUS 25°F PRECHARGE ACCUMULATOR TO 2050 PSI WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT 3350 PSI	0.25	17875	SEE VIEW G-G
3	↑ AT TEMPS ABOVE MINUS 25°F PRECHARGE ACCUM ULATOR TO 1800 PSI WITH AIR OR NITROGEN ACCUMULATOR WILL BOTTOM AT 3000 PSI	0.25	17875	SEE VIEW G-G
4	NO HANDHOLD	1.0	17875	SEE VIEW G-G
5	SEQUENCE VALVE	0.5	17038	SEE VIEW H-H
6	STA 594.0	1.0	17875	SEE VIEW J-J
7	↑ DANGER HIGH VOLTAGE ↑	1.0	13538	▭ WL 42.0, LBL 6.0
8	STA 575.0	1.0	17875	SEE VIEW K-K
9	STA 555.0	1.0	17875	SEE VIEW L-L
10	STA 534.0	1.0	17875	SEE VIEW M-M
11	STA 502.4	1.0	17875	SEE VIEW N-N
12	HOIST CONTROL ↓	0.25	17875	SEE VIEW N-N
13	DEBRIS SCAN CHIP DET	0.5	17875	SEE VIEW G-G
14	UTIL SYS PRESS MDL	0.5	17875	▭ WL -48, LBL 11.6 (FWD SIDE)
15	UTIL SYS RTN MDL	0.5	17875	▭ WL -45, RBL 17 (FWD SIDE)
16	UTILITY SYSTEM DEPRESSURIZATION VALVE PUSH TO DEPRESSURIZE ⬆	0.5	17875	SEE VIEW G-G
17	ACCESS XMSN UNLATCH DROP PANEL KEEP CLOSED IN FLIGHT	0.5	17875	SEE VIEW G-G

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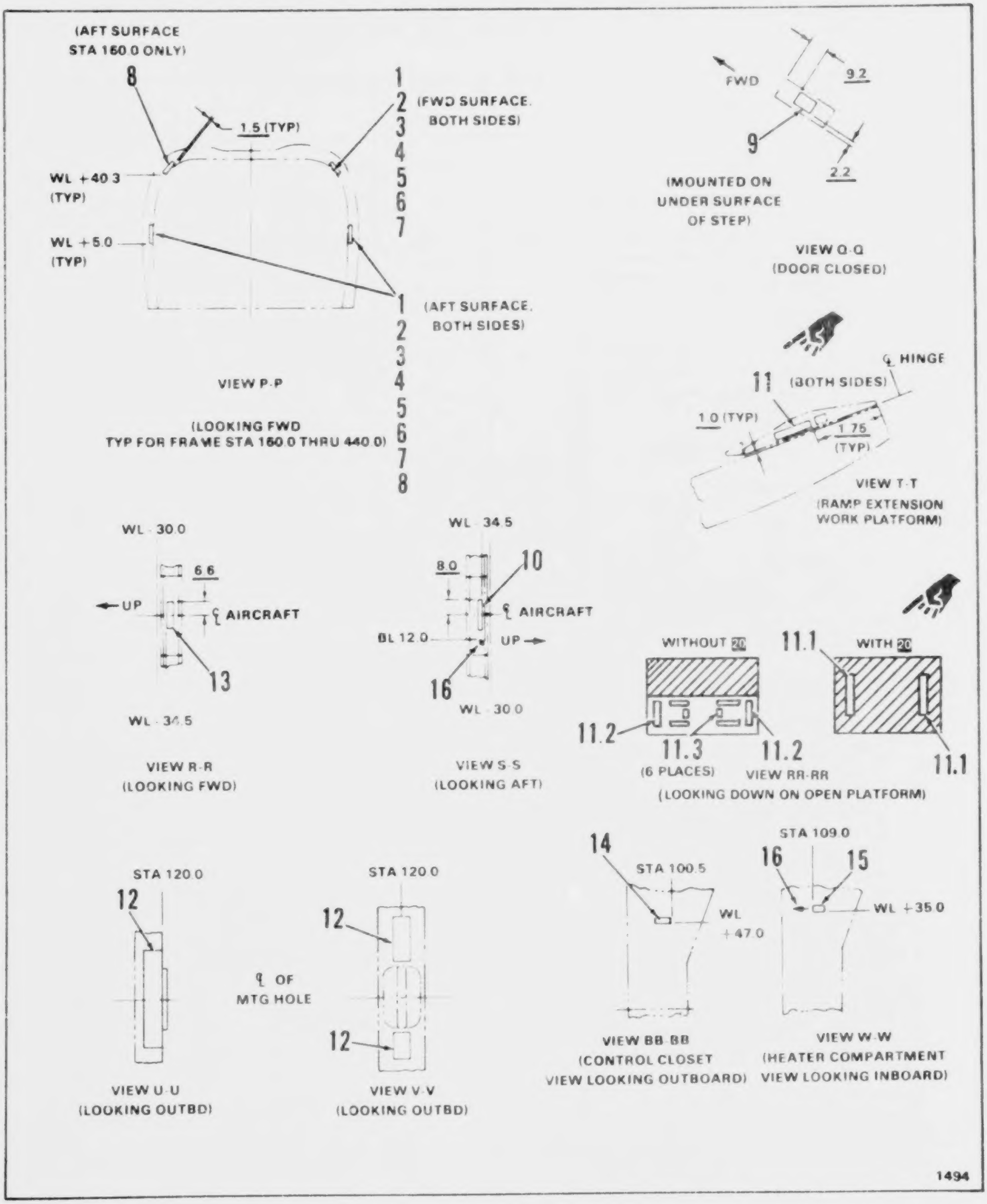
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


(AFT SURFACE
STA 160.0 ONLY)
8
1.5 (TYP)
1
2 (FWD SURFACE. BOTH SIDES)
3
4
5
6
7
WL +40.3 (TYP)
WL +5.0 (TYP)
1 (AFT SURFACE, BOTH SIDES)
2
3
4
5
6
7
8
FWD
9.2
9
2.2
(MOUNTED ON UNDER SURFACE OF STEP)
℄ HINGE
11
(BOTH SIDES)
1.0 (TYP)
1.75 (TYP)
WL 30.0
6.6
UP
℄ AIRCRAFT
13
WL 34.5
WL 34.5
8.0
10
℄ AIRCRAFT
BL 12.0
UP
16
WL 30.0
WITHOUT 20
11.1
WITH 20
11.2
11.3 (6 PLACES)
11.2
11.1
STA 120.0
12
STA 120.0
12
℄ OF MTG HOLE
12
14
STA 100.5
WL +47.0
STA 109.0
16
15
WL +35.0
1494

VIEW P-P

(LOOKING FWD
TYP FOR FRAME STA 160.0 THRU 440.0)

VIEW Q-Q
(DOOR CLOSED)

VIEW T-T
(RAMP EXTENSION WORK PLATFORM)

VIEW R-R
(LOOKING FWD)

VIEW S-S
(LOOKING AFT)

VIEW RR-RR
(LOOKING DOWN ON OPEN PLATFORM)

VIEW U-U
(LOOKING OUTBD)

VIEW V-V
(LOOKING OUTBD)

VIEW BB-BB
(CONTROL CLOSET
VIEW LOOKING OUTBOARD)

VIEW W-W
(HEATER COMPARTMENT
VIEW LOOKING INBOARD)

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	STA 200	1 0	17875	SEE VIEW P P
2	STA 240	1 0	17875	SEE VIEW P P
3	STA 280	1 0	17875	SEE VIEW P P
4	STA 320	1 0	17875	SEE VIEW P P
5	STA 360	1 0	17875	SEE VIEW P P
6	STA 400	1 0	17875	SEE VIEW P P
7	STA 440	1 0	17875	SEE VIEW P P
8	STA 160	1 0	17875	SEE VIEW P P
9	PUSH TRIGGER TURN HANDLE UP PUSH DOOR OUT	1 0	17875	SEE VIEW Q Q
10	HOOK STOWAGE STRAP	1 0	37038	WL 34 5 BL 0 0
11	MAX WEIGHT 200 LBS ON WORK PLATFORM	0 5	17875	SEE VIEW T T
11 1	MAX WEIGHT 400 LBS	1 0	17875	SEE VIEW RR RR
11 2	MAX WEIGHT	1 0	37038	SEE VIEW RR RR
11 3	NO STEP	1 0	37038	SEE VIEW RR RR
12	XM24 GUN MTG	0 5	17875	SEE VIEW U U AND V V
13	CENTER HOOK CAP 26000 LB	1 0	17038	WL-34 5 BL 0 0
14	NO 1 LWR FLT MDL	0 5	17875	STA 100 5 WL 47

1495

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
15	FOR EMERGENCY OPERATION	0.25	17875	STA 109, WL -35
	1 TWO MEN REQUIRED-ONE TO OPERATE CONTROLS ONE TO DIRECT AND STABILIZE LOAD 2 REMOVE ELECTRICAL CONNECTORS FROM SHUTOFF AND CONTROL VALVE 3 SELECT DESIRED POSITION ON CONTROL VALVE "REEL OUT"-ROTATE KNOB CLOCKWISE "REEL IN"-ROTATE KNOB COUNTER-CLOCKWISE 4 MANUALLY OPERATE SHUT-OFF VALVE "ON" PUSH KNOB IN AND ROTATE 90° "OFF" ROTATE KNOB TO RELEASE WARNING TO PREVENT LOSS OF LOAD DO NOT: ● REEL OUT CABLE WITH LESS THAN THREE (3) CABLE TURNS LEFT ON DRUM ● REEL IN IF CABLE FITTING IS WITHIN SIX (6) INCHES OF PULLEY	0.19		
16	⇨	0.8x3.5	17038 BACKGROUND	LBL 12.0, WL 34.5

1496

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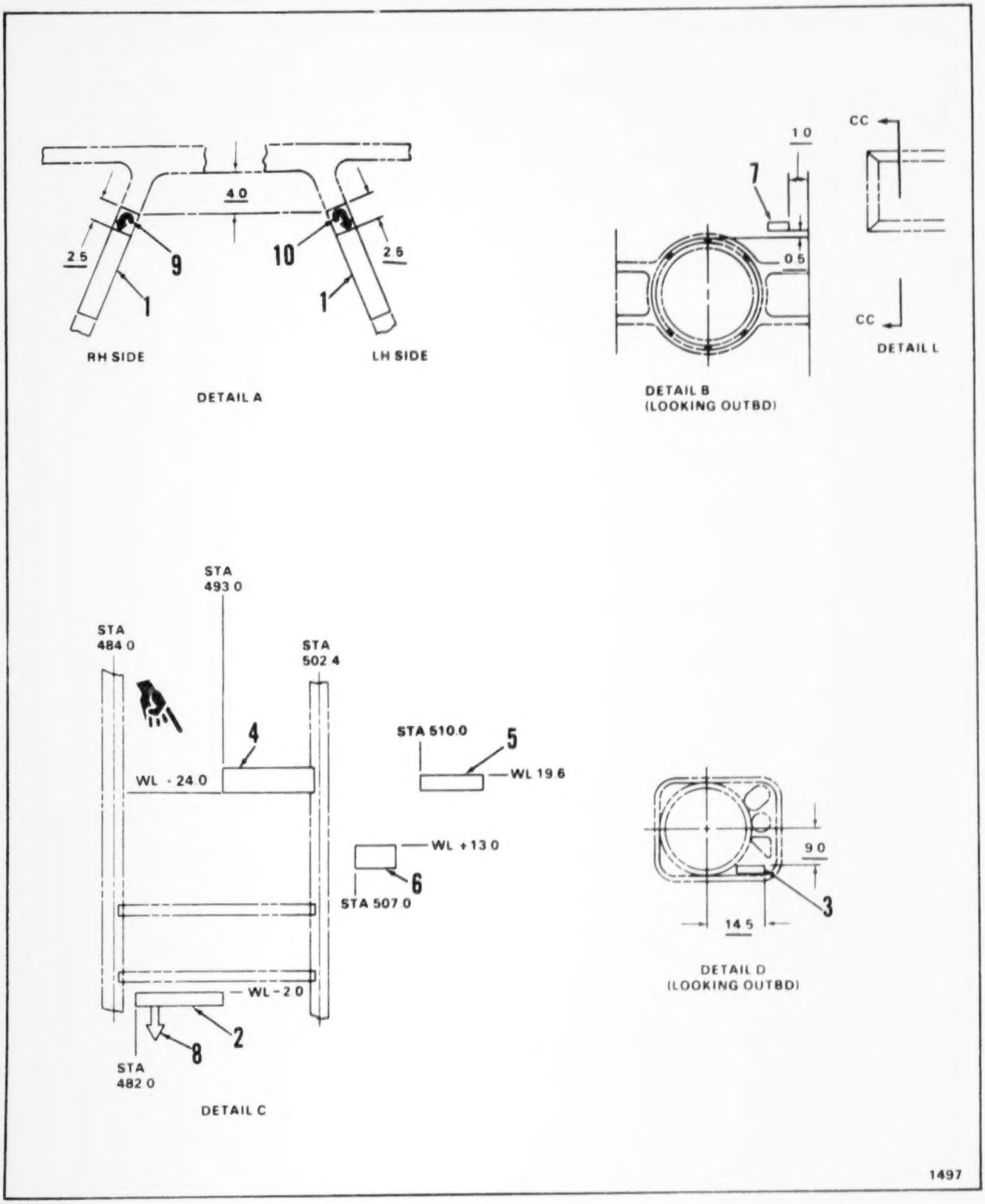
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


4.0
2.5
9
1
RH SIDE
10
2.5
1
LH SIDE
DETAIL A
1.0
7
0.5
DETAIL B
(LOOKING OUTBD)
CC
CC
DETAIL L
STA
493.0
STA
484.0
STA
502.4
4
WL +24.0
STA 510.0
5
WL 19.6
WL +13.0
6
STA 507.0
WL -2.0
2
8
STA
482.0
DETAIL C
9.0
3
14.5
DETAIL D
(LOOKING OUTBD)
1497

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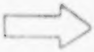
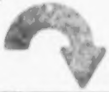
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	EMERGENCY EXIT TURN HANDLE	1.0 0.5	33538	SEE DETAIL A
2	STA 486	1.0	17038	STA 484.0 WL 2.0
3	EMERGENCY EXIT PULL STRAP OUT PUSH PANEL	0.5	33538	SEE DETAIL D
4	FUEL VALVE NO 2 ENGINE ← CLOSE OPEN →	0.5 0.25	17875	STA 493.0 WL 20.0
5	DEFUEL VALVE CLOSE ⤵ OPEN ⤴	0.5 0.25	17875	STA 510.0 WL 19.6
6	FUEL VALVE CROSSFEED ← CLOSE OPEN →	0.5 0.25	17875	STA 507.0 WL 13.0
7	⇩ EMERGENCY EXIT PULL STRAP OUT PUSH WINDOW OUT	1.0 0.5	13538	SEE DETAIL B
8		0.8x3.5	17038 BACKGROUND	STA 486.0 WL 21.5
9		1.9 x 2.0	33538	SEE DETAIL A
10		1.9 x 2.0	33538	SEE DETAIL A

1498

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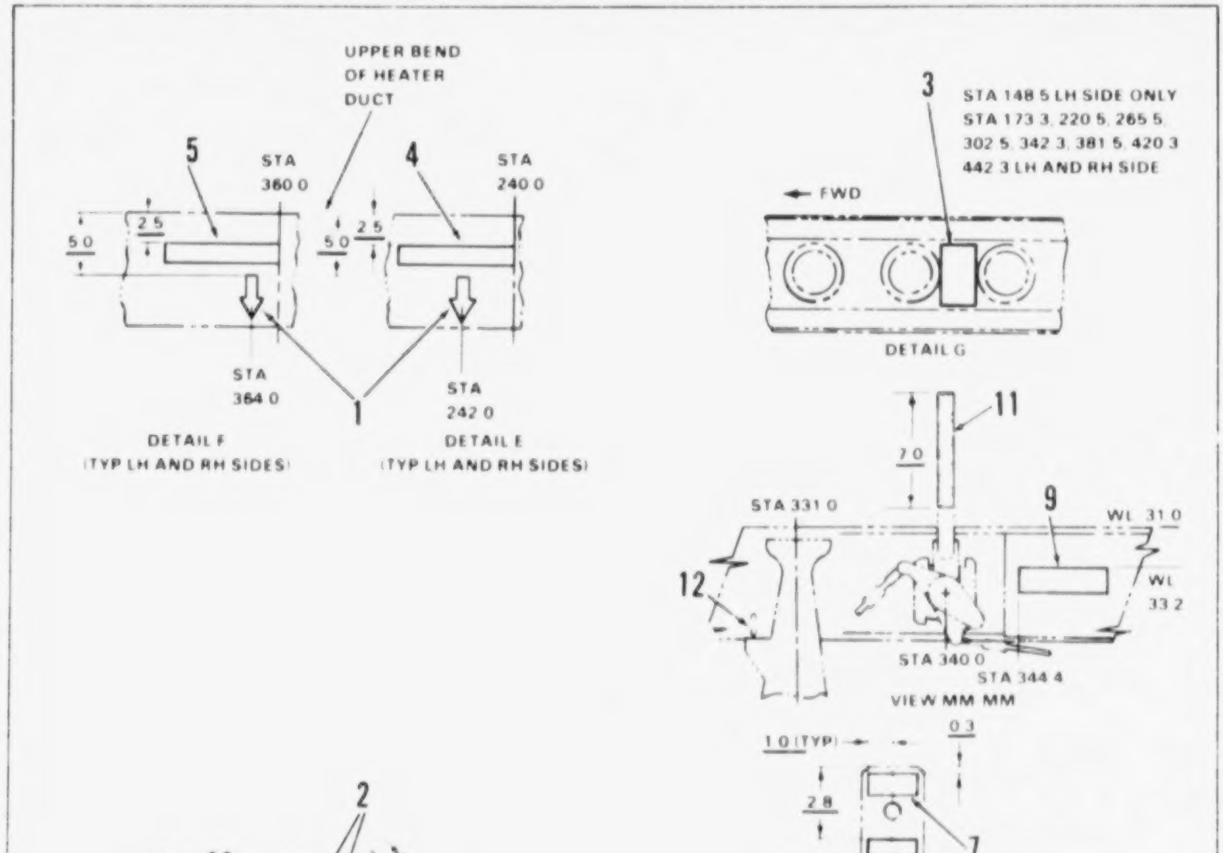
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


UPPER BEND OF HEATER DUCT
5
STA 360 0
4
STA 240 0
2 5
5 0
5 0
2 5
STA 364 0
1
STA 242 0
DETAIL F (TYP LH AND RH SIDES)
DETAIL E (TYP LH AND RH SIDES)
3
STA 148 5 LH SIDE ONLY
STA 173 3, 220 5, 265 5, 302 5, 342 3, 381 5, 420 3, 442 3 LH AND RH SIDE
FWD
DETAIL G
11
7 0
STA 331 0
9
WL 31 0
12
WL 33 2
STA 340 0
STA 344 4
VIEW MM MM
1 0 (TYP)
0 3
2 8
7
8
DETAIL I
2
1 5
6 0
6 0
3 0
45
16 5
16 5
1 5
13 0
5 0
4 0
6
10
DETAIL H (LOOKING OUTBD)
1 0
6
13
1
2 5
WL + 40 0
STA 629 0
DETAIL K
1499

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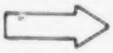
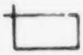
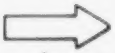
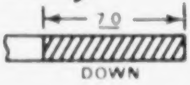
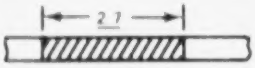
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1		0 8 x 3 5	17875 BACKGROUND	SEE DETAIL E AND F
2	EMERGENCY EXIT PULL STRAP OUT PUSH PANEL	1 0 0 5	33538	SEE DETAIL H
3	WL 0	1 0	17875	SEE DETAIL G
4	STA 242	1 0	17875	SEE DETAIL E
5	STA 364	1 0	17875	SEE DETAIL F
6	TURN HANDLE UP LIFT DOOR	1 0	17875	SEE DETAIL H
7	CABLE CUTTER	0 25	17875	SEE DETAIL I
8	HOIST CONTROL	0 25	17875	SEE DETAIL I
9	EMERGENCY RELEASE FWD AND AFT HOOKS	0 38	17875	 STA 344 4, WL 33 2
10		0 8x3 5	13538 BACKGROUND	SEE DETAIL H
11	 TOP OF HANDLE	7 0 LONG AROUND HANDLE	11136 17875	STA 340 0 ON TANDEM HOOK RELEASE
12		2 7 LONG AROUND TOP	11136 17875	STA 328 0 ON TOP OF CENTER CARGO HOOK RELEASE PULL RING
13	APU HOIST PT	0 5	17875	SEE DETAIL K

1500

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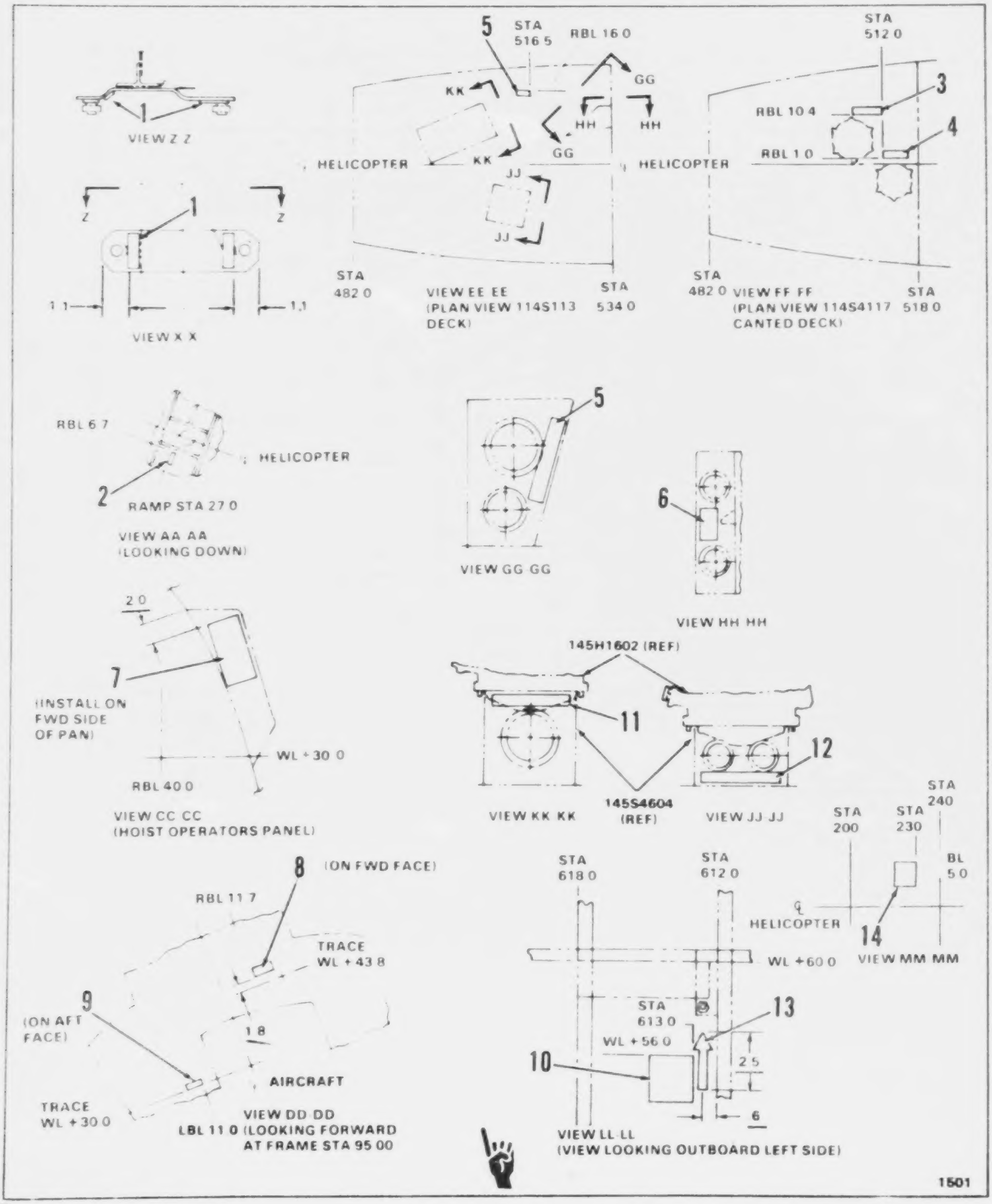
2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352


1
VIEW Z Z
Z
Z
1
1.1
1.1
VIEW X X
5
STA
516 5
RBL 16 0
GG
KK
HH
HH
GG
KK
HELICOPTER
JJ
JJ
STA
482 0
VIEW EE EE
(PLAN VIEW 114S113
DECK)
STA
534 0
STA
512 0
3
RBL 10 4
4
RBL 1 0
HELICOPTER
STA
482 0
VIEW FF FF
(PLAN VIEW 114S4117
CANTED DECK)
STA
518 0
RBL 6 7
HELICOPTER
2
RAMP STA 27 0
VIEW AA AA
(LOOKING DOWN)
5
VIEW GG GG
6
VIEW HH HH
2 0
7
(INSTALL ON
FWD SIDE
OF PAN)
WL + 30 0
RBL 40 0
VIEW CC CC
(HOIST OPERATORS PANEL)
145H1602 (REF)
11
12
145S4604
(REF)
VIEW KK KK
VIEW JJ JJ
8
(ON FWD FACE)
RBL 11 7
TRACE
WL + 43 8
9
(ON AFT
FACE)
1 8
AIRCRAFT
TRACE
WL + 30 0
VIEW DD DD
LBL 11 0 (LOOKING FORWARD
AT FRAME STA 95 00
STA
618 0
STA
612 0
WL + 60 0
STA
613 0
13
WL + 56 0
10
2 5
6
VIEW LL LL
(VIEW LOOKING OUTBOARD LEFT SIDE)
STA
200
STA
230
STA
240
BL
5 0
℄
HELICOPTER
14
VIEW MM MM
1501

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
1	FUEL VALVE WARNING LIGHT	0 12 0 19	37038	SEE VIEW X X
2	AT 740 A ANT	0 5	37875	RAMP STA 27 RBL 6 7
3	UTIL SYS FAN	0 5	17875	STA 512 0 RBL 10 4
4	NO 2 FLT SYS FAN	0 5	17875	STA 512 0 RBL 1 0
5	ACCUMULATOR CHARGE 1400 PSI AIR OR NITROGEN	0 25	17875	STA 516 5 RBL 16 SEE VIEW GG GG FOR SECOND POSITION
6	NO 2 FLT SYS MDL	0 5	17875	SEE VIEW HH HH
7	LOADING CONFIGURATION — MAX PAYLOAD FWD HOOK ONLY — 17000 LB CTR HOOK ONLY — 26000 LB AFT HOOK ONLY — 17000 LB TANDEM POINT LOAD — 23000 LB TOTAL ALL LOADING TO BE WITHIN GROSS WT CG ENVELOPE SEE OPERATORS INSTRUCTIONS FWD AND AFT HOOK MANUAL RELEASE OPERATION ● POSITION LEVER VERTICALLY FOR OPERATING MODE ● PULL LEVER AFT TO RELEASE ● PUSH LEVER FWD TO STOW	0 13	17875	SEE VIEW CC CC
8	XMSN OIL LVL SIGHT GAUGE	0 5	17875	WL 45 6 RBL 11 7
9	NO 2 LWR FLT MDL	0 5	17875	WL 30 LBL 11 0

1502

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2-352 FINAL FINISH — INTERIOR AND EXTERIOR METAL STRUCTURE (Continued) 2-352

INDEX NO.	NOMENCLATURE	LETTER SIZE (INCHES)	COLOR (FED STD 595)	LOCATION
10	APU HOIST PT	0.5	17875	SEE VIEW LL-LL
11	UTIL SYS RSVR	0.5	17875	SEE VIEW KK-KK
12	NO 2 FLT SYS RSVR	0.5	17875	SEE VIEW JJ-JJ
13	⇨	0.8 x 3.5	17875 BACKGROUND	
14	ACCUMULATOR CHARGE 700 PSI - AIR OR NITROGEN	0.5	17875	☐ STA 141.0, LBL 15.0

1503

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-353 FINISH NONMETALLIC PARTS — ORGANIC 2-353

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Cloths (E120)
Naphtha (E245)
Abrasive Paper (E9)
Primer (E291 and E293)
Lacquer (As Required)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Refinish impregnated glass cloth parts, except rotary-wing blades, as follows:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

a. Wash part three times. Use cloth (E120) soaked in naphtha (E245). Wear gloves (E186).

b. Rub part lightly. Use abrasive paper (E9).

c. Repeat step a.

WARNING

Primer (E291 and E293) is flammable and toxic. Avoid inhaling. Use only with adequate ventilation, away from heat or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

d. Apply primer (E291) to inside surfaces. Apply primer (E293) to outside surfaces. Wear gloves (E186).

e. Apply two coats of lacquer as required to match adjacent structure. Wear gloves (E186).

INSPECT

FOLLOW-ON MAINTENANCE:

As required

END OF TASK

2-354 SPECIAL FINISH SURFACES EXPOSED TO ALKALINE 2-354

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Epoxy Primer (E293)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Apply one coat of epoxy primer (E293) to surfaces within 12 inches of NiCad storage batteries for alkaline protection. Battery location is in forward end of left pod at sta 180.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-354.1 SPECIAL FINISH — HELICOPTERS 83-24105 AND SUBSEQUENT 2-354.1

INITIAL SETUP

Applicable Configurations:
83-24105 and subsequent

Tools:
As Required

Materials:
Alodine 1200 Powder (E65)
Dry Cleaning Solvent (E162)
Cloths (E120)
Abrasive Paper (E9)
Epoxy Primer (E292)
White Epoxy Topcoat (E166.2)
Grey Epoxy Topcoat (E166)
Orange-Yellow Epoxy Topcoat (E166.1)
Black Polyurethane (E285.1)
Green Polyurethane (E285.2)
Low Relfective Black Lacquer (E214.1)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
MIL-C-5541
MIL-C-22751

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Primer and topcoats used in this task are flammable and toxic. They can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

1. Helicopters 83-24105 and subsequent require special paint treatment in the following areas:

   a. Entire structure under cabin floor (1).

   b. Entire internal structure from WL 0.0 down between stations 95.0 and 554.0 (2).

   c. Entire structure under ramp floor (3).

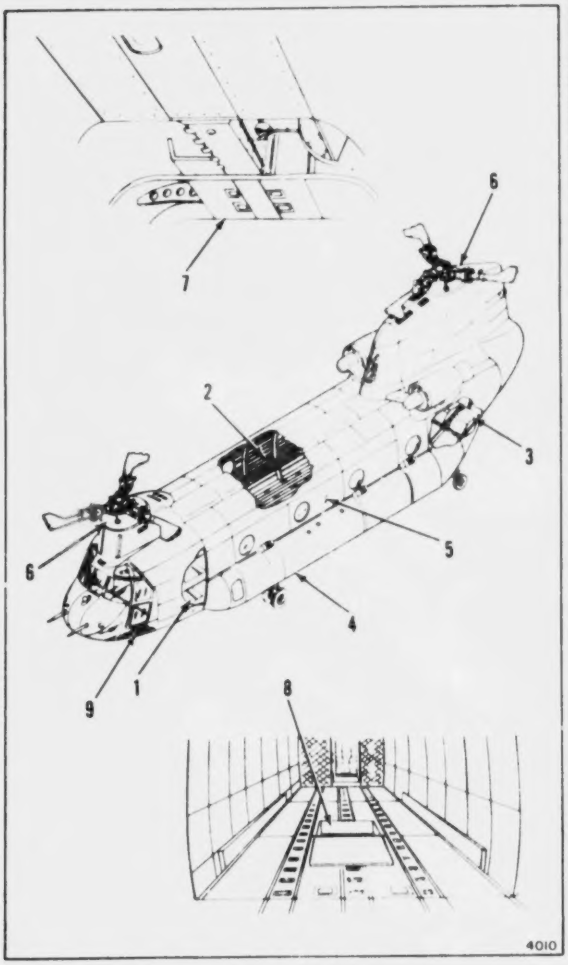
   d. Entire internal structure of pods (4) from WL 0.0 down, including landing gear wells.

   e. Entire exterior surface (5) below weather-protective covers (6).

   f. Ceiling structure (7).

   g. Inside of hatch area (8).

   h. Entire structure under cockpit floor (9).



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2-354.1 SPECIAL FINISH — HELICOPTERS 83-24105 AND SUBSEQUENT (Continued) 2-354.1

PREPARATION

2. **Inspect existing finish** in area to be refinished for softening, flaking, or other signs of poor adherence. **Remove loose finish** by sanding.

WARNING

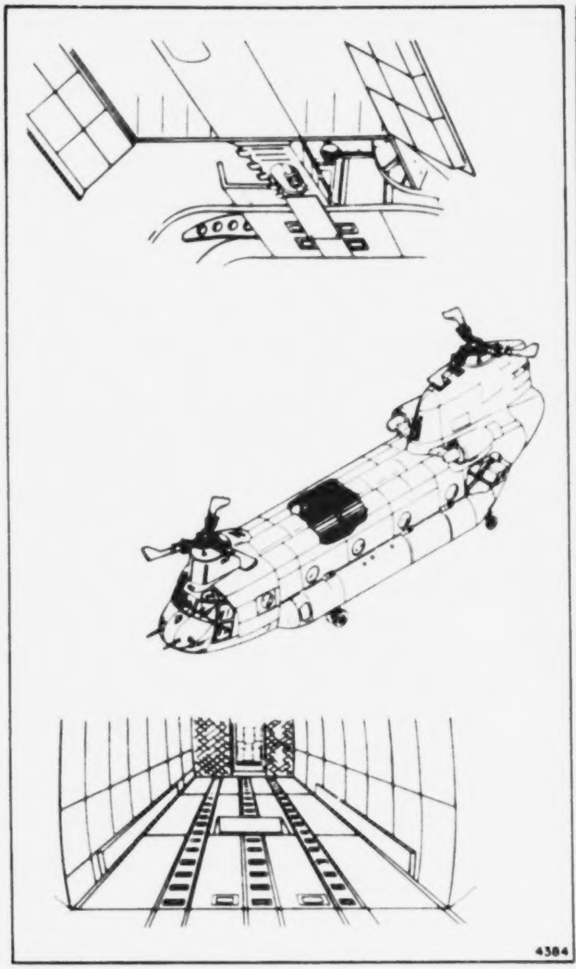
Alodine powder (E65) is an oxidizer. Discard cloths which contain this material in a separate container. If discarded with cloths contaminated with acetone, MEK or other organic solvents, combustion can result. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

3. **Apply** solution of **alodine 1200 (E65)** in water to bare aluminum areas. (Refer to MIL-C-5541.) Wear gloves (E186).

WARNING

Dry cleaning solvent (E162) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes . Get medical attention for eyes.

4. **Clean** treated area **with dry cleaning solvent (E162)** and cloths (E120).
5. **Lightly sand** cleaned area. Use abrasive paper (E9). **Repeat step 4.**



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2-354.1 SPECIAL FINISH — HELICOPTERS 83-24105 AND SUBSEQUENT (Continued) 2-354.1

6. Apply a light coat of epoxy primer (E292). (Refer to MIL-C-22751.) Let dry for 2 hours .
7. **Apply a second full coat of primer (E292).** Let dry for 1 hour .

PAINTING

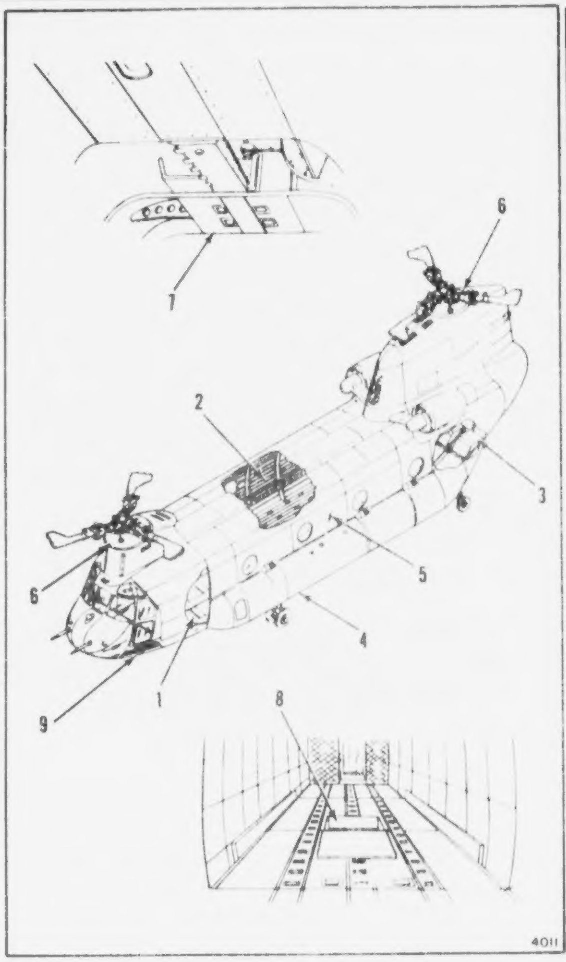
8. **Apply two coats of topcoat** to interior and exterior surfaces as follows:

NOTE

Allow 1 hour drying time between coats.

   a. Cabin underfloor area (1) — Use white epoxy (E266.2).
   b. Ramp underfloor area (3) and cabin and ramp area walls (2) and ceiling (7) — Use grey epoxy (E166).
   c. Hatch area (8) — Use orange-yellow epoxy (E166.1).
   d. Exterior surfaces (5) — Use black polyurethane (E286.1).
   e. Exterior markings below rainshield (6) — Use green polyurethane (E285.2).
   f. Cockpit under floor area (9) — Use low reflective black lacquer (E214.1).

9. All other paint and markings are unchanged.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-355 SPECIAL FINISH DECAL OVERCOATING 2-355

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Cloths (E120)
Naphtha (E245)
Lacquer (E213)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Overcoat decals aft of sta 440, on helicopter interior, as follows:

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

a. Remove oil or other contamination from decal. Use cloth (E120) soaked with naphtha (E245). Wear gloves (E186).

b. If decal cannot be cleaned satisfactorily, replace, or use stenciled lacquer markings.

NOTE

Stenciled lacquer markings must be used when rework is required for STEP legends.

CAUTION

Do not apply lacquer wet or heavy. Decal can lift at edge.

WARNING

Lacquer (E213) is extremely flammable. It can be toxic. Keep away from heat, sparks, or open flames. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

c. Apply 0.001-inch dry film thickness of lacquer (E213). Spray four times to achieve thickness.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-356 SPECIAL FINISH WALKWAYS 2-356

INITIAL SETUP

Applicable Configurations:
All

Tools:
Power Mixer
Heat Lamp

Materials:
Walkway Material (E440)
Cloth (E120)
Naphtha (E245)
Masking Tape (E388)
Kraft Paper (E263)
Epoxy Primer (E293)
Gloves (E186)
Temperature Indicating Strips (E413)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1. Prepare surface for walkway material application as follows.

WARNING

Naphtha (E245) is combustible and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   a. Remove wax, grease, oil, dirt, or other materials. Use cloth (E120) soaked in naphtha (E245). Wear gloves (E186).

   b. Mask areas around walkway. Use kraft paper (E263) and masking tape (E388).

2. Finish surface as follows:

WARNING

Primer (E293) is flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

   a. Apply two coats of epoxy primer (E293) to walkway surface. Wear gloves (E186). Allow 3 hours for drying.

NOTE

If walkway coating (E440) has been stored, containers must be turned over 24 hours before mixing.

   b. If stored, turn containers upside-down 24 hours before mixing.

   c. Mix black epoxy walkway coating with 50-mesh walnut shells (E440) for 15 minutes. Use power mixer. Scrape bottom of container to loosen any settled walnut shell pieces.

NOTE

Working life of material is 8 hours at 70°F (21°C), 5 hours at 100°F (38°C), or 3 hours at 110°F (43°C).

   d. Apply one liberal coat of walkway coating (E440) to surface. Allow to dry 4 hours at 70°F (21°C).

NOTE

Coating is firm for foot traffic in 24 hours at 70°F (21°C).

INSPECT

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-357 IMPREGNATED GLASS PARTS REPAIR 2-357

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
TB 746-93-2

Equipment Condition:
As Required

General Safety Instructions:
As Required

---

1 Repair impregnated glass parts. Refer to TM 55-1500-204-25/1 and TB 746-93-2.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-358 REPAIR HONEYCOMB STRUCTURES 2-358

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Sandwich honeycomb structures on helicopter are made with aluminum alloy honeycomb core sandwiched between aluminum alloy skins. Some edge members of panels are made of Scotchply, a non-woven impregnated glass fabric. Others, such as work platforms, have free edges filled with Corfil 615. Effectiveness of repairs depends upon correct classification of damage, and proper repairs.

2. Classify damage as follows.

   a. Dents to surface skin may not exceed 50 square-inches per dent. Dents next to each other are the same as one dent.

   b. Total dent damage to one pod shall not exceed 200 square inches.

   c. Dents shall not be deeper than 10 percent of panel thickness, or 0.10-inch, whichever is less.

   d. Dent must be free of cracks or holes and must not exceed two per 40-inch length of panel.

3. Refer to TM 55-1500-204-25/1 for honeycomb sandwich parts damage classifications.

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-359 INSPECTION OF SKIN FOR OILCAN 2-359

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-360

Equipment Condition:
As Required

General Safety Instructions:
As Required

OILCAN SKIN

1. **Press inward on skin** panels. If skin stays in and skin of next panel comes out, go to step 2. If not, do Task 2-360, then go to step 2.
2. **Press inward on bulge** in a panel. If skin pops when pressed, then released, go to step 3. If not, do Task 2-360, then go to step 3.

NORMAL SKIN

3. **Press inward on skin** which looks normal. If skin returns and looks normal, go to step 4. If not, do Task 2-360, then go to step 4.

SOFT OR LOOSE SKIN

4. **Press inward on skin** which has a ripple surface. If skin does not pop when pressed, then released, go to step 5. If skin pops, do Task 2-360, then go to step 5.

TRAPPED SKIN

5. Skin panels buckled outward or inward with sharp creases or dents must be repaired (Task 2-360).

SINGLE PANEL OILCAN SKIN

6. **Press inward on bulge** in skin. If skin stays in but bulge comes up in other area of panel, repair panel (Task 2-360).
7. **Repeat step 6.** If skin pops when pressed, then released, go to step 8. If not, do Task 2-360, then go to step 8.
8. **Press skin inward then outward.** If skin does not pop and skin moves in other panels, go to step 9. If not, do Task 2-360, then go to step 9.

MULTI-PANEL OILCAN SKIN

9. **Press inward on skin** of one panel. If next panel pops out, press this panel inward. If panel first pressed in pops out, do Task 2-360, then go to step 10. If not, go to step 10.
10. **Press inward on skin** of one panel. If skin buckles outward in more than one other panel, do Task 2-360, then go to step 11. If not, go to step 11.

BUCKLED SKIN

11. **Press inward and hold skin** of one panel. Apply pressure to bulge in next panel. Slowly release pressure on first panel. If panel tends to bulge outward, then panel is buckled. If panel does not bulge outward, panel is not buckled.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-360 REPAIR OF OILCAN SKIN (AVIM) 2-360

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-361
Task 2-362
Task 2-363
Task 2-364

Equipment Condition:
As Required

General Safety Instructions:
As Required

1. Repair oilcan skin as follows
   a. For skin and web repairs, perform Task 2-361
   b. For skin repair, using a coin patch, perform Task 2-362
   c. For web repair using backing plate perform Task 2-363
   d. For skin repair, using temporary patch perform Task 2-364
2. Apply watertight seal to repairs below waterline 0
3. Repair loose skins and oilcan using stiffeners as follows
   a. Do not use stiffeners in bottom section of cabin between lower longerons and sta 160 and 482
   b. Do not use on outside of aircraft
   c. Do not use stiffeners if they will be in the way of parts or moving components
   d. Use minimum number of stiffeners to correct oilcan
   e. Stiffeners must be attached at each end to main structure
   f. Stiffeners must be next larger thickness than skin and made from 2024-T3 clad aluminum alloy
   g. Stiffeners longer than 30-inches must be made from Alcoa 33372 or equivalent
   h. Stiffener attaching clips are made from 2024-T3 clad aluminum alloy and be same thickness as stiffener
   i. Install rivets MS20470AD4 at about 3/4-inch pitch for attaching stiffeners not thicker than 0.040-inch

FOLLOW-ON MAINTENANCE

Not required

END OF TASK

2-361 REPAIR SKIN AND WEBS

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
Task 2-326
Task 2-351
Task 2-362
Task 2-363
Task 2-364
Task 2-275

Equipment Condition:
As Required

General Safety Instructions:
As Required

COIN PATCH REPAIR

1. Perform Task 2-362. Refer to Task 2-326 for rivet sizes.

WEB REPAIR USING BACKING PLATE

2. Perform Task 2-363. Refer to Task 2-326 for rivet sizes.

SKIN REPAIR USING TEMPORARY PATCH

3. Perform Task 2-364. Refer to Task 2-326 for rivet sizes.
4. Maintain a minimum distance of 5/8-inch between cutouts and edge of patch.
5. Insulate dissimilar metals. Refer to Task 2-351.
6. Repair tailcone as classified in Task 2-275.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-362 REPAIR SKIN USING COIN PATCH 2-362

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Zinc Chromate Primer (E291)
Sealant (E336)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

References:
TM 55-1500-204-25/1
Task 2-324
Task 2-326
Task 2-275

Equipment Condition:
As Required

NOTE

- No more than two patches for each skin panel 15 x 50 inches or less
- Panels not less than 15 x 50 inches between longer longerons and sta 160 and 482 may have four patch maximum
- All patches must clear next structural member by 1/8 inch and be sealed. Refer to Task 2-324 for sealing

1 Repair dents, punctures, tears and small cracks that can be cut out from 1/2 to 1 1/2 inch diameters.

COIN PATCH AND BACKPLATE

2 **Cut out damage.**

3 **Cut out coin patch** of same material and thickness as skin. Diameter of patch must be 5/16-inch less than cutout.

4 **Cut out round backplate** three times diameter of coin patch, from same material, but next thicker size.

5 Smooth edges of cutout, coin patch, and backing plate. Use a file.

6 **Center coin patch** on backing plate. **Drill rivet holes** through coin patch and backing plate. Refer to Task 2-326 hole and rivet sizes.

7 **Install rivets.**

WARNING

Zinc chromate primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes for at least 15 minutes. Get medical attention for eyes.

8 Apply coat of primer (E291) on all surfaces of coin patch. Allow to dry. Wear gloves (E186).

9 **Insert coin patch** in cutout from inside. **Drill rivet holes** through backing plate and skin. Rivet pitch should be about 3/4-inch.

WARNING

Sealant (E336) can irritate skin and cause burns. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

10 **Remove coin patch.** Apply sealant (E336) to coin patch and cutout. Wear gloves (E186).

11 **Position coin patch** and backing plate in cutout. **Install rivets.**

GO TO NEXT PAGE

2-362 REPAIR SKIN USING COIN PATCH (Continued) 2-362

COIN PATCH

12. If damage is less than 1/2-inch and larger than 3/16-inch and is located over undamaged frame or stiffener, do not use a backplate. Rivet coin patch to frame or stiffener.

TAILCONE REPAIR

13. Repair classifications are given in Task 2-275.

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-363 REPAIR WEB USING BACKING PLATE 2-363

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Zinc Chromate Primer (E291)
Gloves (E186)

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-326

Equipment Condition:
As Required

NOTE

No more than two repairs in each web.

1. Holes, tears, or sharp dents not more than 1 1/2-inches diameter that can be cut out.
2. Repair must be clear of next structure by 1/8-inch.
3. **Cut or drill out damage.** Damage must not be less than 3/16-inch. If damage can be removed by drilling 3/16-inch hole, do step 2. If not, do steps 3 thru 7.
4. **Drill 3/16-inch diameter hole.** Install rivet and washer. Set rivet.
5. **Cut round backing plate** of same material as web, and next thickness. Cut plate to cover cutout and overlap cutout a minimum of four times diameter of rivet. If backing plate cannot be round, corner radius must not be less than 1/4-inch.
6. Smooth edges of plate. Use a file.
7. Center plate over cutout. **Drill rivet holes.** Pitch must be 1/2 to 3/4-inches. Refer to Task 2-326 for rivet and hole sizes.

WARNING

Zinc chromate primer (E291) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes for at least 15 minutes. Get medical attention for eyes.

8. Apply coat of primer (E291) to surfaces of plate and cut out. Allow to dry. Wear gloves (E186).
9. **Position plate** over cutout. **Install rivets.**

INSPECT

FOLLOW-ON MAINTENANCE

As required

END OF TASK

2-364 REPAIR SKIN USING TEMPORARY PATCH 2-364

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Acetone (E20)
Thinner (E414)
Dope (E463)
Tape (E391)
Cloth (E121)
Gloves (E186)

Personnel Required:
Aircraft Structural Repairer
Inspector

Equipment Condition:
As Required

General Safety Instructions:

WARNING

Acetone (E20) is extemely flammable. It can be toxic. Avoid inhaling. Use only with adequate ventilation. Avoid contact with skin, eyes, or clothing. Keep away from heat, sparks, or open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

Thinner (E414) or dope (E463) are flammable and toxic. It can irritate skin and cause burns. Use only with adequate ventilation, away from heat or open flame. Avoid contact with skin, eyes, or clothing. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

NOTE

- Repair of minor holes or cracks
- Damage allowable for one-time flights

1 Repair holes and cracks with fabric patches as follows

a **Stop-drill cracks** or trim hole

b Remove paint from around damage Use acetone (E20) or thinner (E414) Wear gloves (E186)

c **Cut a pinked-edge patch** from cloth (E121) Patch should overlap hole

d **Apply coat of dope** around damage. Wear gloves (E186)

e **Apply patch** while dope is wet Smooth patch to remove wrinkle

f Remove excess dope and allow patch to dry

g **Apply two coats** of dope to patch Allow patch to dry

2 Repair holes and cracks with tape as follows

a **Repeat steps 1.a. and b.**

b **Cut an oval or round patch** from tape (E391)

c **Apply patch to damaged area.** Apply pressure to patch Use a rubber roller

3 Repair must be painted for easy detection for permanent repair

TAILCONE REPAIR

4 Repair classifications are given in Task 2 275

FOLLOW ON MAINTENANCE

As required

END OF TASK

2-365 REPAIR CANVAS AND WEBBING 2-365

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
Thread (E420)

Personnel Required:
68G20 Aircraft Structural Repairer
43M10 Fabric Repair Specialist
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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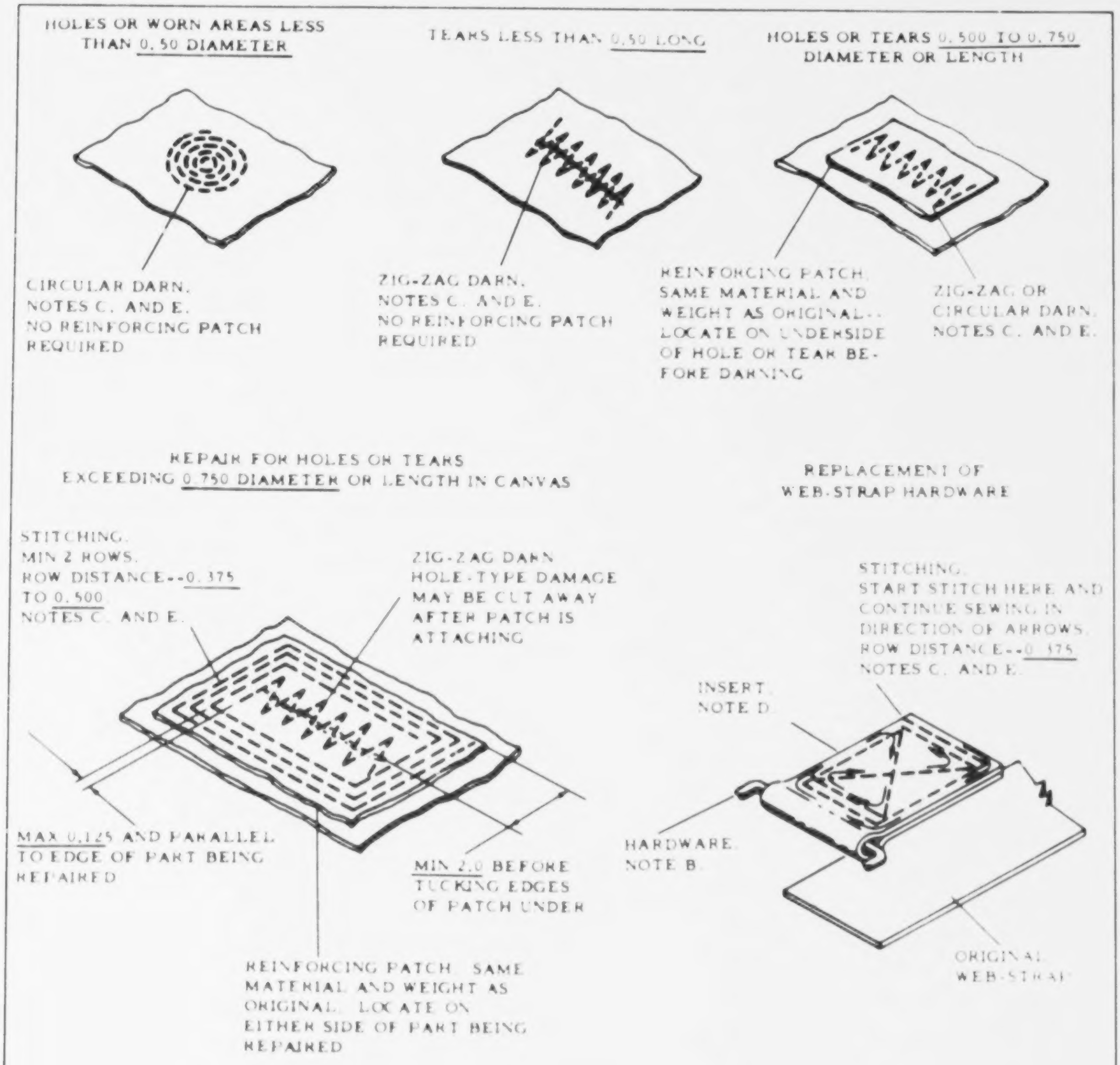
2-365 REPAIR CANVAS AND WEBBING (Continued) 2-365


HOLES OR WORN AREAS LESS THAN 0.50 DIAMETER
TEARS LESS THAN 0.50 LONG
HOLES OR TEARS 0.500 TO 0.750 DIAMETER OR LENGTH
CIRCULAR DARN. NOTES C. AND E. NO REINFORCING PATCH REQUIRED
ZIG-ZAG DARN. NOTES C. AND E. NO REINFORCING PATCH REQUIRED
REINFORCING PATCH. SAME MATERIAL AND WEIGHT AS ORIGINAL-- LOCATE ON UNDERSIDE OF HOLE OR TEAR BEFORE DARNING
ZIG-ZAG OR CIRCULAR DARN. NOTES C. AND E.
REPAIR FOR HOLES OR TEARS EXCEEDING 0.750 DIAMETER OR LENGTH IN CANVAS
REPLACEMENT OF WEB-STRAP HARDWARE
STITCHING. MIN 2 ROWS. ROW DISTANCE--0.375 TO 0.500. NOTES C. AND E.
ZIG-ZAG DARN HOLE-TYPE DAMAGE MAY BE CUT AWAY AFTER PATCH IS ATTACHING
STITCHING. START STITCH HERE AND CONTINUE SEWING IN DIRECTION OF ARROWS. ROW DISTANCE--0.375 NOTES C. AND E.
INSERT. NOTE D.
MAX 0.125 AND PARALLEL TO EDGE OF PART BEING REPAIRED
MIN 2.0 BEFORE TUCKING EDGES OF PATCH UNDER
HARDWARE. NOTE B.
REINFORCING PATCH. SAME MATERIAL AND WEIGHT AS ORIGINAL. LOCATE ON EITHER SIDE OF PART BEING REPAIRED
ORIGINAL WEB-STRAP

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. USE SAME PART NUMBER HARDWARE AS ORIGINAL.
C. STITCHING TO BE IN ACCORDANCE WITH DDD-S-751, 5 TO 8 STITCHES PER INCH DEPENDING UPON WEIGHT OF MATERIAL. USE FEWER STITCHES PER INCH FOR HEAVIER MATERIAL.
D. INSERT TO BE SAME MATERIAL AND WEIGHT AS ORIGINAL.
E. USE THREAD (E420) COLOR TO MATCH COLOR OF ORIGINAL MATERIAL.

42 X 51

D145-9792-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

2-366 REPAIR OF ALUMINUM TUBING 2-366

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G20 Aircraft Structural Repairer
67U30 Inspector

References:
TM 55-1500-204-25/1

Equipment Condition:
As Required

General Safety Instructions:
As Required

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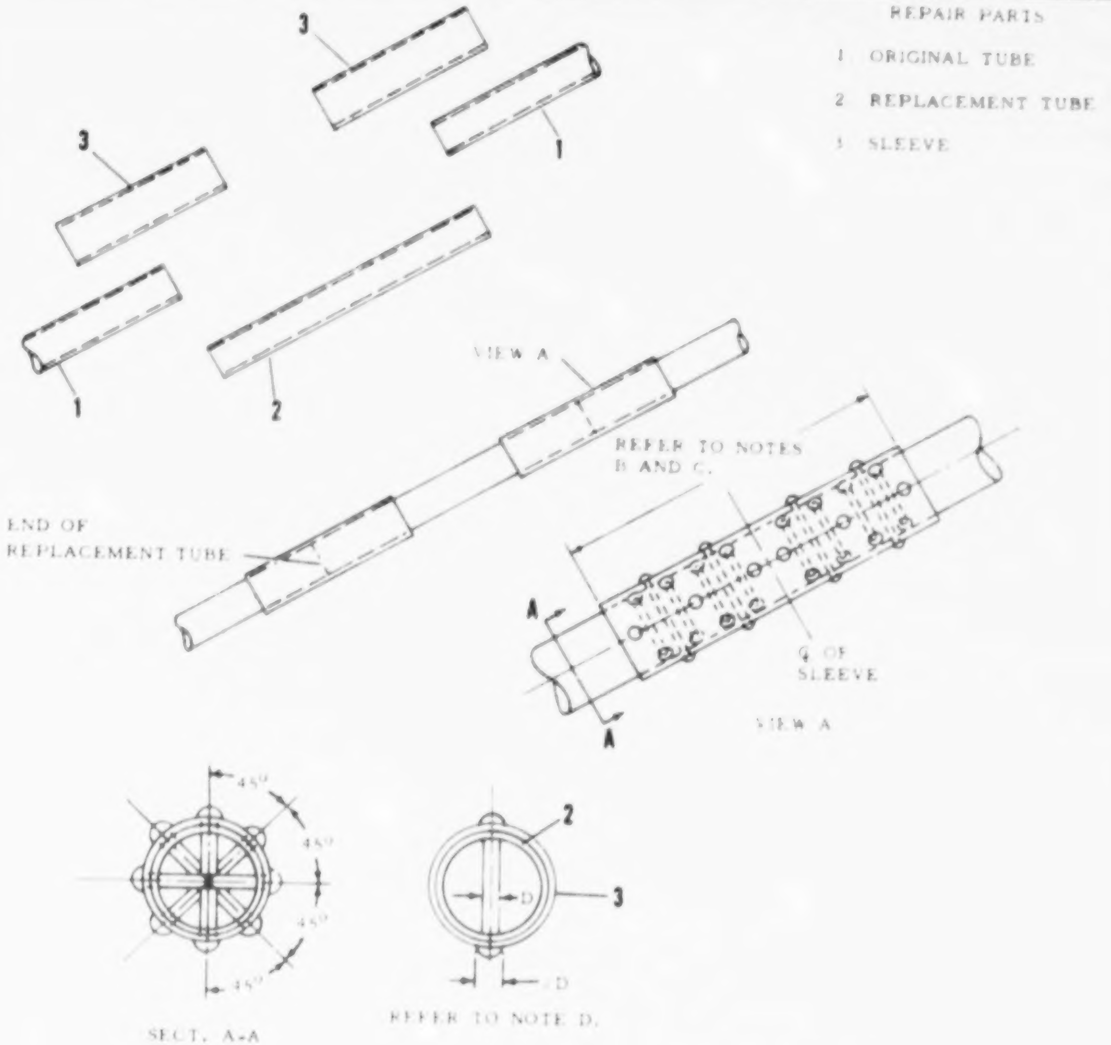
REPAIR PARTS
1. ORIGINAL TUBE
2. REPLACEMENT TUBE
3. SLEEVE
3
1
3
1
2
VIEW A
REFER TO NOTES B AND C.
END OF REPLACEMENT TUBE
A
A
℄ OF SLEEVE
VIEW A
45°
45°
45°
45°
2
D
3
D
SECT. A-A
REFER TO NOTE D.

TUBES (1) AND (2)		SLEEVE (3)			RIVETS
DIA	WALL	DIA	WALL	LENGTH	REQD
0.50	0.035	0.625	0.058	9.375	MS20470AD5
0.75	0.065	0.875	0.058	9.375	MS20470AD5
0.875	0.065	1.0	0.058	9.375	MS20470AD5
1.0	0.065	1.125	0.058	11.25	MS20470AD6
1.25	0.065	1.25	0.058	11.25	MS20470AD6
1.25	0.058	1.375	0.058	11.25	MS20470AD6
1.375	0.058	1.5	0.058	11.25	MS20470AD6
1.5	0.058	1.625	0.058	15.0	MS20470AD8
1.625	0.058	1.75	0.058	15.0	MS20470AD8
1.75	0.058	1.875	0.058	15.0	MS20470AD8
1.875	0.058	2.0	0.058	15.0	MS20470AD8

NOTES

A. ALL DIMENSIONS ARE IN INCHES.
B. ALL RIVETS 3D PITCH.
C. TOTAL NUMBER OF RIVETS REQUIRED: 18, 9 EACH SIDE OF SLEEVE CENTERLINE.
D. FORM SHOP HEADS BY HAMMERING LIGHTLY. SHOP HEADS TO BE APPROXIMATE HEIGHT OF MANUFACTURED HEAD.
E. USE SAME TYPE MATERIAL AS ORIGINAL FOR REPLACEMENT TUBE AND SLEEVE.
F. REPAIR IS APPLICABLE TO STRUCTURAL TUBING ONLY. REFER TO TM55-1500-204-25/1 FOR INFORMATION ON REPAIR OF FLUID TUBING.

42 X 51

D145-9793-SPA

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-367 REPAIR OF RUBBER SEALS 2-367

INITIAL SETUP

Applicable Configurations:
All

Tools:
As Required

Materials:
As Required

Personnel Required:
68G Aircraft Structural Repair
67U30 Inspector

References:
TM 55-1500-204-25/1
Task 2-311

Equipment Condition:
As Required

General Safety Instructions:
As Required

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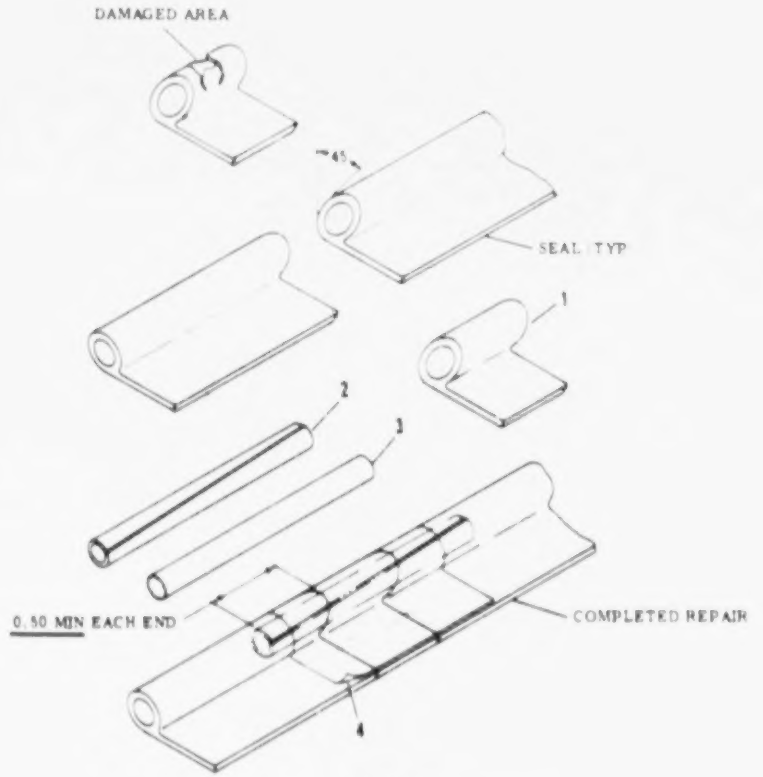
2-367 REPAIR OF RUBBER SEALS (Continued) 2-367

NOTE

Damage to seals made up of more than one material are usually not reparable.

Repair seals as follows:



REPAIR PARTS

1. INSERT. SECTION OF ORIGINAL TYPE SEAL
2. SPLICE. RUBBER SHEET OF SAME COMPOSITION AS SEAL. TUBE MAY BE SUBSTITUTED IF OF PROPER DIAMETER OR SPLIT TO FIT
3. SPLICE ALTERNATE. SPONGE RUBBER OF SAME COMPOSITION AS SEAL. TO BE USED ONLY WHEN NO OTHER MATERIAL IS AVAILABLE
4. FILM. CLEAR PLASTIC TO RESTORE MOISTURE PROTECTION ON SPONGE SEALS WITH FACINGS

NOTES

A. ALL DIMENSIONS ARE IN INCHES
B. PEEL DAMAGED AREA FROM STRUCTURE. NEST SECTION OF ORIGINAL TYPE SEAL WITH DAMAGED AREA. CUT OUT DAMAGED AREA AND THROUGH SECTION OF ORIGINAL MATERIAL ON A 45° ANGLE TO OBTAIN MAXIMUM FAYING SURFACE
C. INSTALL A SPLICE, AND CENTER AS SHOWN. ALL FAYING SURFACES TO BE COATED WITH THE APPLICABLE ADHESIVE. REFER TO TASK 2-311 FOR INFORMATION ON ADHESIVE BONDING. REPAIR SHOWN IS APPLICABLE TO HOLLOW SEALS ONLY
D. SEALS SHOWN ON SUBSEQUENT SHEETS, WITHOUT A MATERIAL SYMBOL, ARE MADE OF SILICONE RUBBER

D145-9794-SPA

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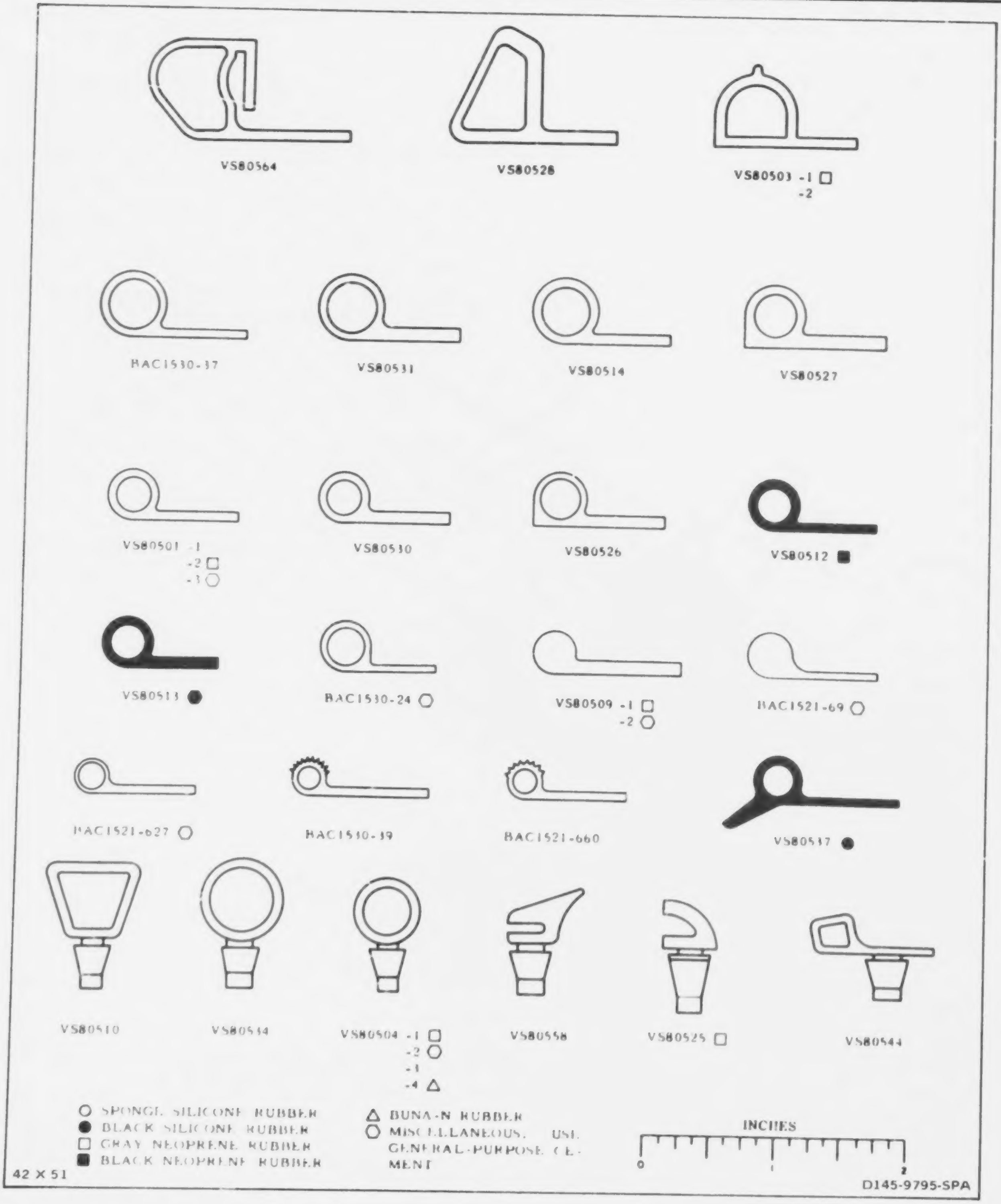
2-367 REPAIR OF RUBBER SEALS (Continued) 2-367


VS80564
VS80528
VS80503 -1 □
-2
BAC1530-37
VS80531
VS80514
VS80527
VS80501 -1
-2 □
-3 ○
VS80530
VS80526
VS80512 ■
VS80513 ●
BAC1530-24 ○
VS80509 -1 □
-2 ⬡
BAC1521-69 ⬡
BAC1521-627 ○
BAC1530-39
BAC1521-660
VS80537 ●
VS80510
VS80534
VS80504 -1 □
-2 ○
-3
-4 △
VS80558
VS80525 □
VS80544
○ SPONGE SILICONE RUBBER
● BLACK SILICONE RUBBER
□ GRAY NEOPRENE RUBBER
■ BLACK NEOPRENE RUBBER
△ BUNA-N RUBBER
⬡ MISCELLANEOUS. USE GENERAL-PURPOSE CEMENT
INCHES
0
1
2
42 X 51
D145-9795-SPA

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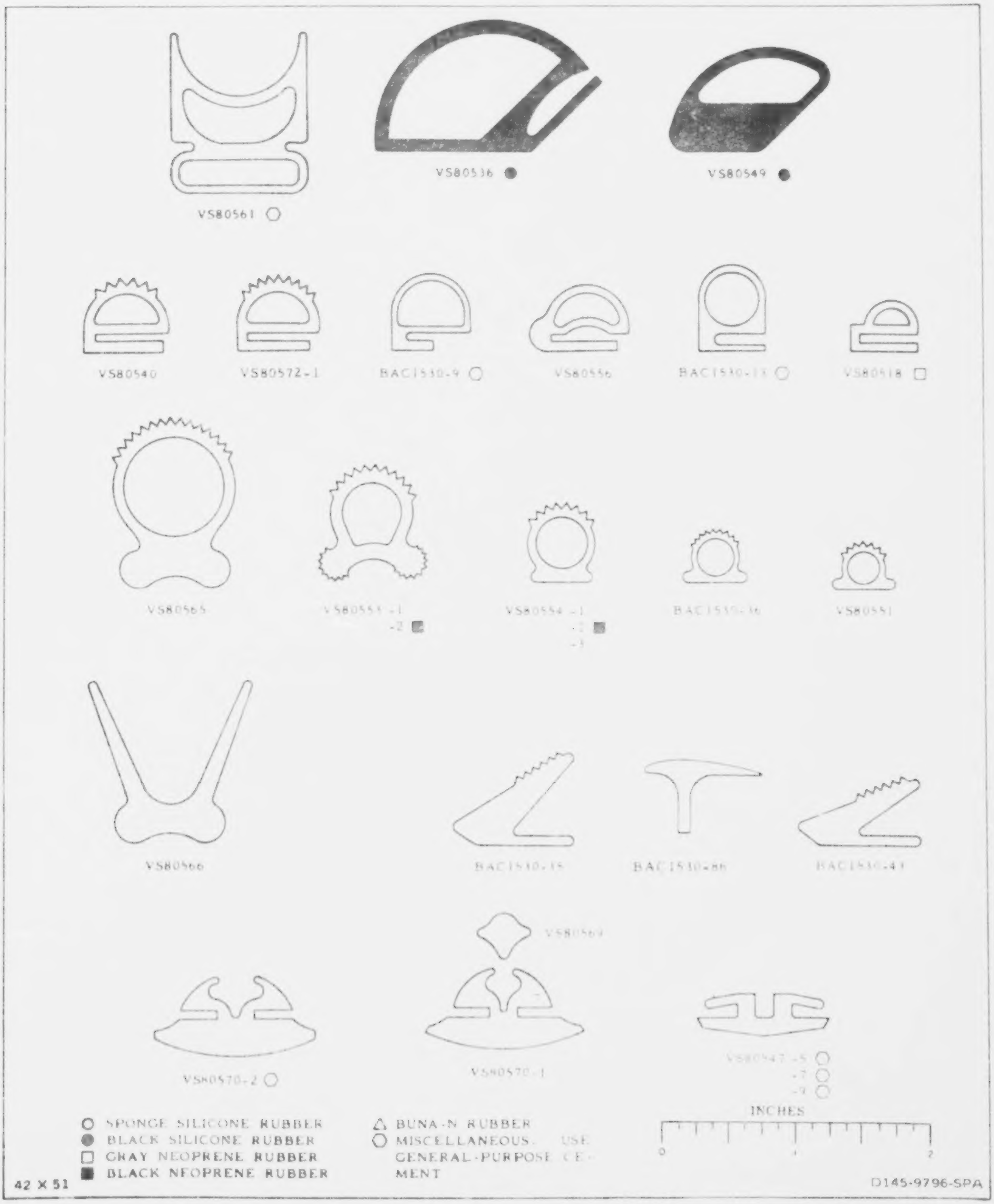
2-367 REPAIR OF RUBBER SEALS (Continued) 2-367


VS80561 ○
VS80536 ●
VS80549 ●
VS80540
VS80572-1
BAC1530-9 ○
VS80556
BAC1530-13 ○
VS80518 □
VS80565
VS80553 -1
-2 ■
VS80554 -1
-2 ■
-3
BAC1530-36
VS80551
VS80566
BAC1530-35
BAC1530-86
BAC1530-43
VS80569
VS80570-2 ○
VS80570-1
VS80547 -5 ○
-7 ○
-9 ○
INCHES
0
1
2
○ SPONGE SILICONE RUBBER
● BLACK SILICONE RUBBER
□ GRAY NEOPRENE RUBBER
■ BLACK NEOPRENE RUBBER
△ BUNA-N RUBBER
⬡ MISCELLANEOUS. USE GENERAL-PURPOSE CEMENT
42 X 51
D145-9796-SPA

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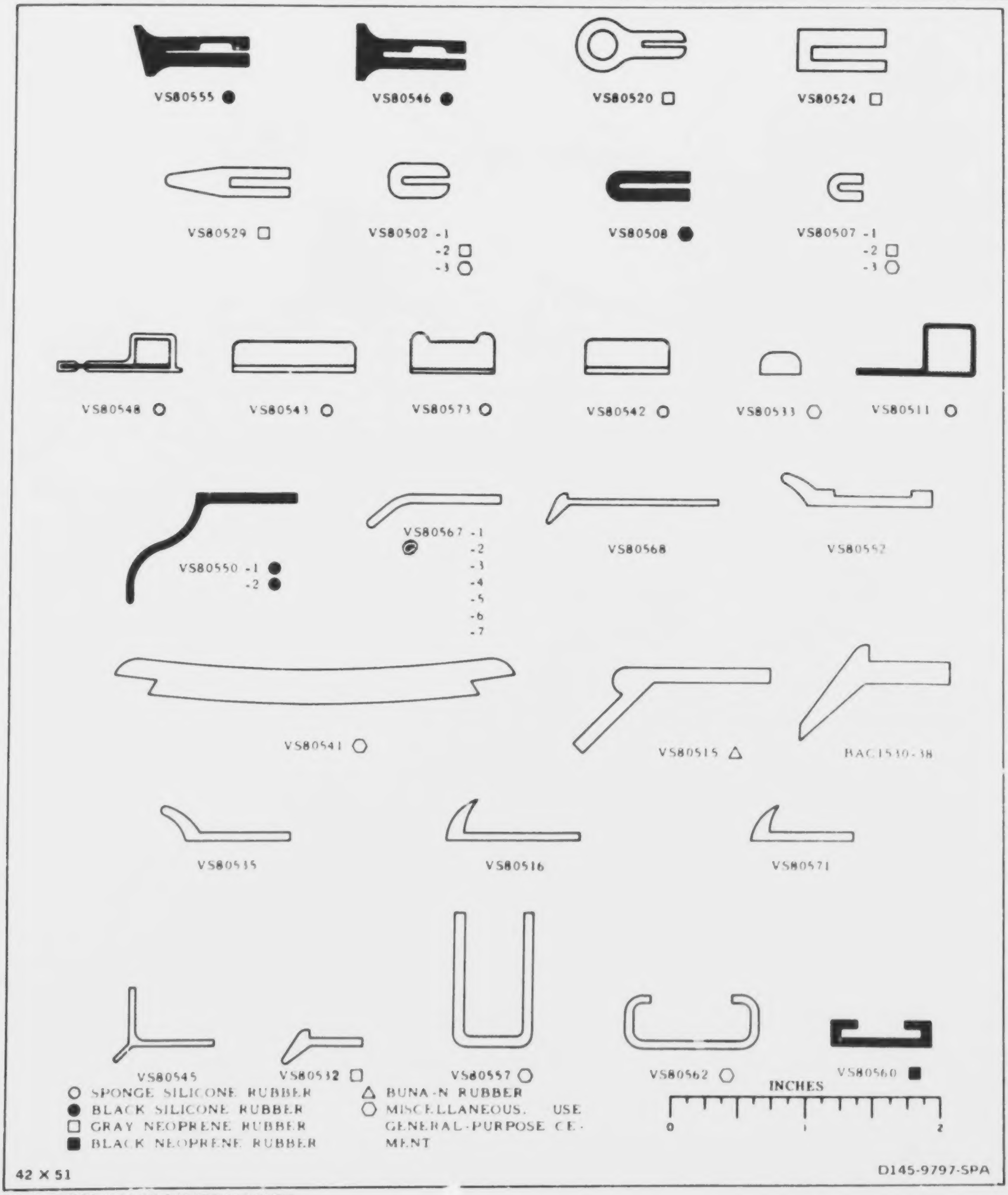
2-367 REPAIR OF RUBBER SEALS (Continued) 2-367


VS80555 ●
VS80546 ●
VS80520 □
VS80524 □
VS80529 □
VS80502 -1
-2 □
-3 ○
VS80508 ●
VS80507 -1
-2 □
-3 ○
VS80548 ○
VS80543 ○
VS80573 ○
VS80542 ○
VS80533 ○
VS80511 ○
VS80550 -1 ●
-2 ●
VS80567 -1
-2
-3
-4
-5
-6
-7
VS80568
VS80552
VS80541 ○
VS80515 △
BAC1530-38
VS80535
VS80516
VS80571
VS80545
VS80532 □
VS80557 ○
VS80562 ○
VS80560 ■
○ SPONGE SILICONE RUBBER
● BLACK SILICONE RUBBER
□ GRAY NEOPRENE RUBBER
■ BLACK NEOPRENE RUBBER
△ BUNA-N RUBBER
○ MISCELLANEOUS. USE GENERAL-PURPOSE CEMENT
INCHES
0
1
2
42 X 51
D145-9797-SPA

FOLLOW-ON MAINTENANCE:

As required.

END OF TASK

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By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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CO A, 3d ENGINEER BN
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DATE SENT

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PUBLICATION DATE: 10 May 83
PUBLICATION TITLE: Aviation Unit & Intermediate Maintenance Manual, CH-47D

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
6	2-1a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylinders. The engine on my set only has 4 Cylinders. Change the manual to show 4 Cylinders.
81		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
JOHN DOE, PFC (268) 317-7111

SIGN HERE John Doe
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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = . 39 inch
1 decimenter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = . 15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigrams = . 035 ounce
1 dekagram = 10 grams = . 35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = . 34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 38.82 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = . 155 sq. inch
1 sq. decimenter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = . 386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = . 06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	3.94
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.365	metric tons	short tons	1.102
pound-inches	newton-meters	.11375			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C